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PLUS
**Winning at
Project Politics**
Case Studies in
the Art of the
Shmooze Page 98

**YOU CALL IT
HARD TIMES?
THEY CALL IT
BUSINESS AS
USUAL**

PENNY PINCHING ALL-STARS

8 CIOs in Low-Margin Industries Share Tips, Tricks and Strategies for Doing a Lot More with A Lot Less Page 76

Cargill CIO Lloyd Taylor gets high value out of an IT budget that reflects his company's 0.7 percent profit margin.



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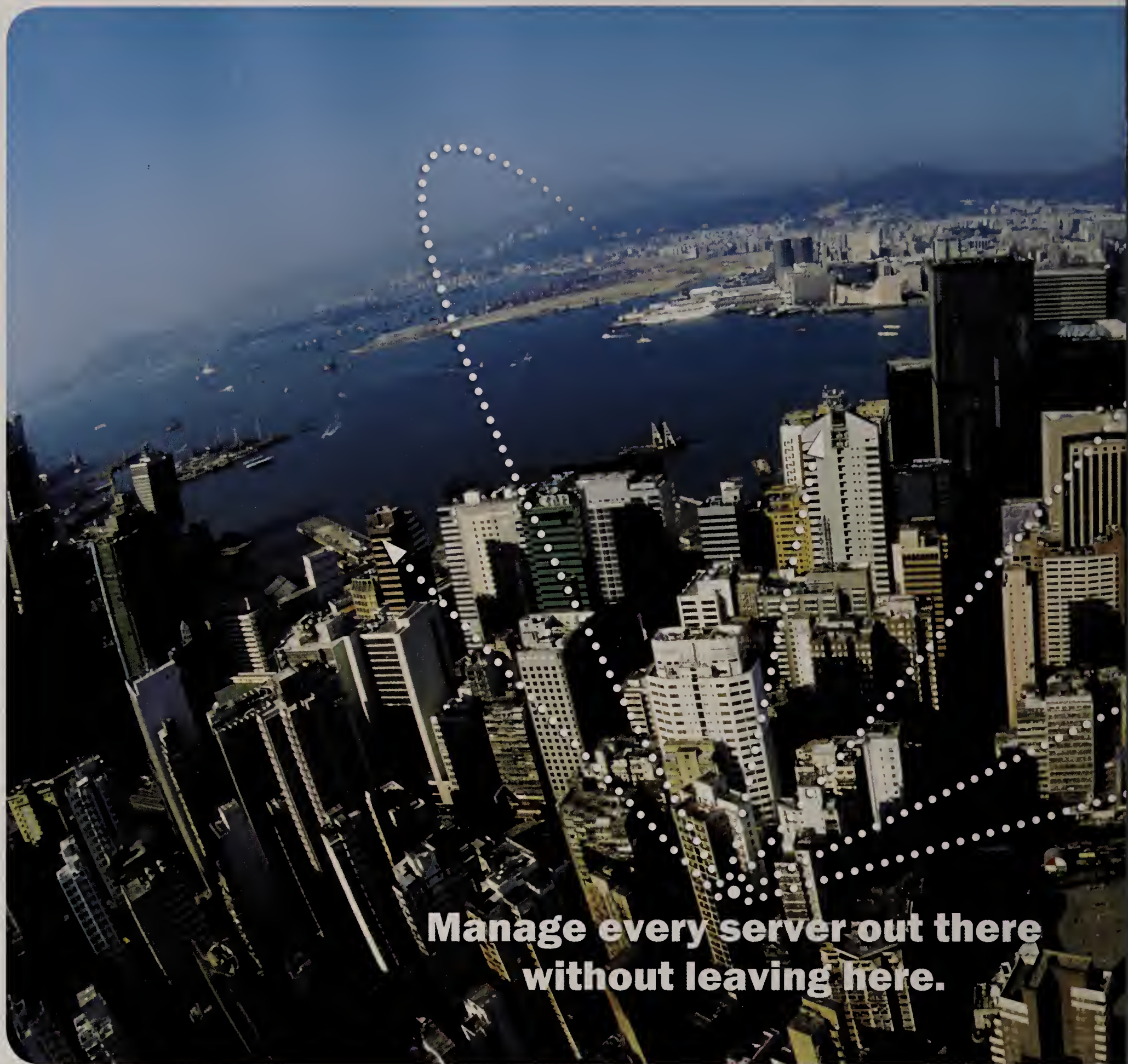
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Cover Story

COST MANAGEMENT | 76

Penny-Pinching All-Stars

For CIOs at companies with historically small profit margins, a recession means little change. Read how they make every IT dollar count.

By Simone Kaplan

COVER PHOTO BY STEVE NIEDORF



Cargill's low profit margin (seven-tenths of 1 percent) doesn't stop CIO Lloyd Taylor. He says that you can still be creative with IT—"You just have to watch the pennies."

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CIO ROLE

Taking Over the Chain Gang | 84

As IT becomes a primary driver of business strategy and profits, it makes sense to put the CIO in charge of your company's supply chain. By Ben Worthen



David Johns, Owens Corning's CIO and chief supply chain officer, was thrust into the dual role of managing IT and the supply chain by an extreme circumstance: his company's bankruptcy. 84

PRIVACY Q&A

Continental Divide | 92

While Europe has adopted strict privacy regulations, U.S. companies are still collecting and trading their customers' info like it's going out of style. If Simon Davies has his way, it will.

By Daintry Duffy

PROJECT POLITICS

The Art of the Shmooze | 98

Four case studies for IT executives on how to influence their peers when planning and implementing IT projects.

By Meridith Levinson

BOOK EXCERPT | LEADING QUIETLY A Win-Win Situation | 106

Low-key strivers, those who transform companies behind the scenes, may be an organization's most valuable asset.

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Seeing the Whole Elephant | 50

It's time companies understand what customers are really worth.

By Mohanbir Sawhney

PEER TO PEER

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Leadership Lessons from the Modern Military

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"The best training I ever had for becoming a CIO was the time I spent as a gung ho airborne infantry officer," says John Carrow, VP and CIO for Unisys. 126

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Abstracts of all the feature stories found in this issue.



"Once you see one view of your customers, you need to act on this information by giving them incentives to broaden and deepen the business they do with your company."

—Mohanbir Sawhney, Northwestern Univ. professor and DiamondCluster fellow Page 50

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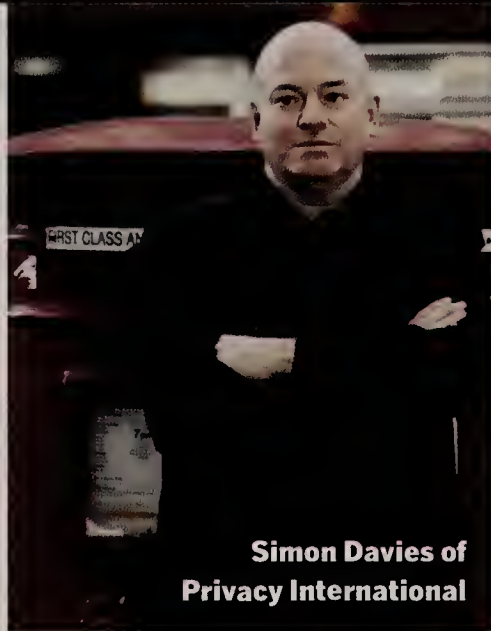
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LEARN MORE

Why CIOs can't ignore EU privacy laws

In **Continental Divide** (Page 92), Simon Davies, director of London-based Privacy International, talks about privacy standards, costs and the effect on free trade. Our Web-exclusive article tells you what you need to know about EU data privacy law.



Simon Davies of Privacy International

TALK BACK

What are your secrets of shmooze?

The hotel lobby, the gym, backstage at the ballet—as **The Art of the Shmooze** (Page 98) explains, anyplace but the boardroom is good to foster relationships. What are your tactics for the successful shmooze?

ASK THE AUTHOR

Can one mix ethics and a successful career?

Joseph Badaracco of Harvard Business School writes about effective and moral leaders (**A Win-Win Situation**, Page 106). Get guidance on your ethical issues or share your hard-won victories.

Find links to these stories and other resources in the Web Connections box at www.cio.com.

Research Centers

Keeping Up

NEW SECTION Trying to figure out collaborative tools, XML and Web services? Check out the new Tech Current, where we capture the technologies currently residing on the cusp. www.cio.com/research/current

A Deeper Understanding

If you had to take a test tomorrow on the basics of security or ERP or supply chain management, would you pass

with flying colors? Are you sure? OK: What is supply chain collaboration? How does insurance fit in with security? What does ERP *really* cost? To brush up on the nuts and bolts, go to: **The ABCs of Security** in the Security Research Center www.cio.com/security

The ABCs of Supply Chain in the Supply Chain Research Center www.cio.com/scm

The ABCs of ERP in the ERP Research Center www.cio.com/erp

Peer Resources

The Darwin Connection

CIO's sister publication, *Darwin* magazine (www.darwinmag.com), explains technology for the nontechnology executive. Throughout this issue, Peer Resources boxes point to related *Darwin* stories. Find them at www.cio.com/printlinks.

Taking Over the Chain Gang (Page 84):

To educate nontechnology peers about IT's role in supply chain management, e-mail them a copy of **Yank Your Chain** from *Darwin*.

Penny-Pinching All-Stars (Page 76):

E-mail a copy of **Sticker Shock** from *Darwin* to help colleagues understand the economics of IT investments.

Our Daily Web

MONDAY Tech Tact

Technology Editor Christopher Lindquist covers what's coming. www.cio.com/techtact

TUESDAY CIO Radio

Web Writer Danielle Dunne talks with the experts. www.cio.com/radio

WEDNESDAY Metrics

Web Writer Jon Surmacz makes sense of the numbers. www.cio.com/metrics

THURSDAY Sound Off

Read the column that takes a stand. Written by Executive Web Editor Martha Heller and others. comment.cio.com

FRIDAY 35 Cent Consultant

Executive Editor Derek Slater gives advice worth the price. www.cio.com/35cent



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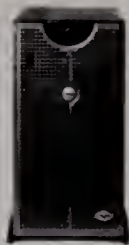


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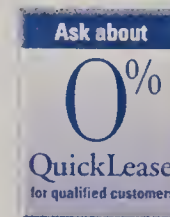
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From the Editor



To find out about the latest developments in supply chain thinking, visit the Supply Chain Management Research Center at www.cio.com/scm.

Back to Work

I WAS REVIEWING the contents of this current issue of *CIO* when it struck me that something has been added to the magazine's editorial mix: sweat.

The stories we're running these days seem to be less about the new, the hot and the sexy, less about knowledge work and more about plain, old-fashioned work-work and the people who do it. And by work, I mean only those efforts that result in measurable improvement and significant change.

If you recall your high school physics, Work equals Force times distance ($W=Fd$). (There should be a cosine in there somewhere, but give me a break—high school was a long time ago.) Using that equation, it's clear that no matter how much force (F) you apply, no matter how much knowledge or effort you put into a problem, if you don't move the object, or system, if $d=0$, then $W=0$. To be a hard-ass about it, if you don't get results, you ain't working.

In our cover story, "Penny-Pinching All-Stars" (Page 76), we meet Lloyd Taylor, CIO of Cargill, a \$49 billion dollar company that operates on a profit margin of seven-tenths of 1 percent. Taylor, sweating the pennies, discovered that his employees were costing his IT department hundreds of thousands of dollars a year by making calls to information to get phone numbers. So he blocked the 411 function on the phone system, posted a link

to the yellow pages on the corporate intranet and thereby saved about a quarter of a million bucks. A good day's work, wouldn't you say?

In "The Art of the Shmooze" (Page 98), four CIOs tell the story of how they got their budget approved and their initiatives implemented because they spent their downtime working—building relationships with their fellow execs, doing favors, talking up their projects. Their message to us: There is no such thing as a casual encounter.

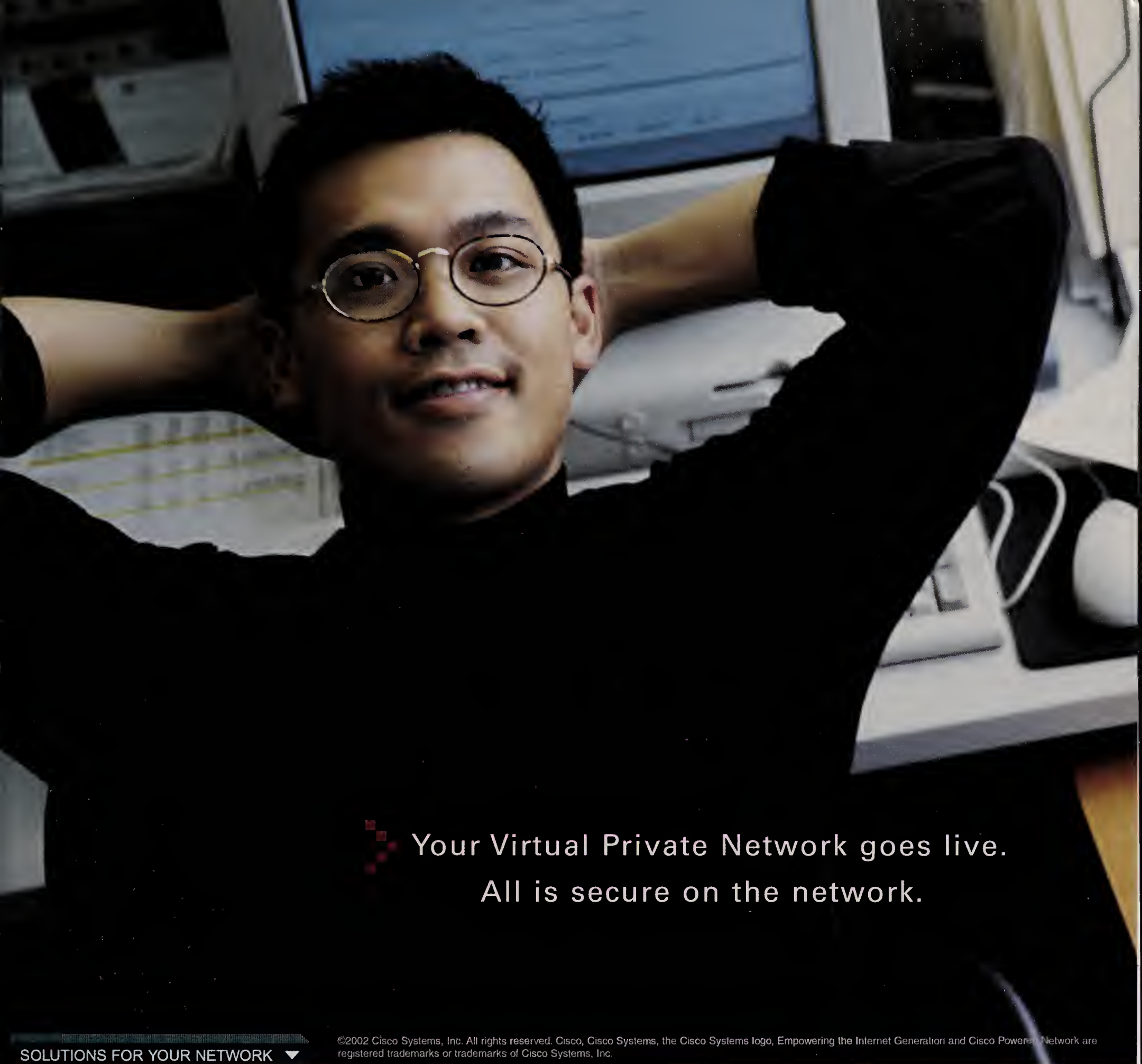
In "Taking Over the Chain Gang" (Page 84), we suggest that it only makes sense that the person who knows IT best—the CIO—should be in charge of the most IT-intensive part of the business: the supply chain. And those companies in which the CIO has taken over the supply chain—like construction materials manufacturing giant Owens Corning—already have made and saved millions.

Yup. It all means more work for you.

Why has sweat become our theme? It may be that the economy no longer affords businesses the luxury of investing in efforts that don't yield measurable returns. It may be a product of the maturation of the IT discipline itself. Perhaps it has put aside childish things to labor in earnest.

Whatever it may be, one thing is clear: It's time for me to get back to work.

Managing Editor
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Reader Feedback

PUT A NAME ON I.T.

I've been through the same issue of whether to brand IT ["Brand IT," Jan. 15, 2002]. In my case, I inherited an IT group that was on the verge of being outsourced as a way of getting rid of a corporate headache. My situation is a bit unusual. My organization provides services to 60 credit unions that own the services company but are not in any way obligated to buy services from it.

Rebuilding the reputation of the team required a total dedication to delivering results, which in turn required managing client expectations. My approach was to get our clients to focus on the products we delivered rather than the company doing the delivery. We started branding all of our products rather than the IT group itself. We now have a powerful WAN branded CoNet. Any service that relies on the network carries the CoNet tag as part of its name. For example, the ATM network is CoNetCash, while the debit

card processing system is CoNetLink. Each has a logo that follows a consistent theme. When we took over total responsibility for the future of the online banking system, we ran a contest to pick a new name for it.

It has worked. The IT staff is utterly determined to protect the quality of "their brands," which has translated into higher service levels, more attention to meeting client needs, and made it much easier to introduce a product management approach to growing and enhancing our system. We're now being recognized for the quality of the products we turn out, the brands are getting national recognition with the credit union system, and our clients still see it as part of them. It's kept the focus where it belongs—on meeting the needs of the client.

Richard Nakoneczny
CIO

Credit Union Central of Manitoba
Winnipeg, Manitoba
richardn@creditunion.mb.ca



TURN AROUND

I read your article ["A Sorry State," Jan. 15, 2002] about the IT turnaround initiative at the U.S. State Department. Your comment that the real issue to progress is less about technology than about management polarity is exactly correct. I am a "turnaround" CIO, and I can tell you this from experience. Correcting a situation, such as the one that exists at the State Department, is less about investing dollars in technology than it is about changing a culture that does not prize the use of information to achieve its mission. Access to even good technology does not change a person's mind-set concerning what is important to achieve excellence. A long

history of cultural indifference to information means there is a long list of senior and middle managers who must change their frame of reference as it pertains to information. That issue will not be solved by training alone. Training will help only those individuals who want to make the change. The remainder, most likely the majority, need different and multiple strategies to change their mind-set. Changing culture requires collaboration. It seems to me

that the country is full of successful examples in different industries where such a cultural change as I described has been made. I did not see any reference to a collaboration with the organizations and people who were part of these success stories. And, given the mood change of citizens and organizations to see a common goal, at least as it pertains to national safety, I would suggest State Department CIO

Fernando Burbano is missing an opportunity to learn about how to change corporate culture.

Wayne W. Murawski
Vice President and CIO
Lesco
Strongsville, Ohio
wmurawski@lesco.com

You did a great job covering the issues that keep the State Department from entering the 20th century (never mind that we are in the 21st).

My husband was a foreign service officer (FSO), now an inspector general with the State Department, and during our overseas service I usually worked in the embassy. It has been five

IT MUST TRANSITION FROM BEING A COST
CENTER TO A VALUE CENTER TO REMAIN
VIALE WITHIN AN ENTERPRISE.

IT: A Brave

THE TITLE HAS REMAINED the same, but the job keeps changing.

When the title of CIO was introduced some 20 years ago, it reflected the increasing importance of IT to the corporation's business activities and competitive capabilities.

At the time, computer experts with a degree in electrical engineering and the job title of DP manager or MIS director, were being exhorted to think like businessmen (it was a male-dominated profession) and to become as comfortable in the boardroom as they were in the data center.

Instead of reporting to the head of the Accounting Department or the CFO, the CIO was to sit at the right hand of the CEO and exhibit a heady mixture of tech-



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nological savvy combined with the business acumen of a Harvard MBA in order to help realize the enterprise's short-term competitive goals and long-term strategic vision.

Today, the results are decidedly mixed. Some CIOs are playing the high-level management role envisioned for them more than two decades ago. Others, despite the title, are more comfortable in the time-honored role of senior IT manager, happily tweaking the technology, reluctantly attempting to meet the ever-increasing

demands of the corporation's business unit managers, and giving little or no thought to those remote entities, the company's customers. And still others are looking to recast their roles in order to meet the challenges of a new decade.

Gerry Smith, President and CEO of Changepoint Corp., has whimsically characterized the current state of affairs using a diagram with an axis containing four quadrants that he labels: Dinosaur, Sheep, Ostrich and Shooting Star.

In the Dinosaur quadrant are companies in which IT does not support customer relations, is viewed as overhead, and is often the first target for reduced spending when profit margins get tight. The IT manager reports to the CFO.

Ostriches are similar to Dinosaurs, but in their case, the CEO has delegated technology responsibility to a CIO who is more concerned with standards and TCO than changing customer relationships. IT is still very much an overhead item.

In the Sheep category are companies that commit significant capital to IT but follow, not lead, the industry in automation efforts. The CEO supports information technology spending, but is not willing to risk an industry changing strategy.

Shooting Stars are characterized by a CIO who reports to the CEO. IT's budget is based on cumulative decisions by the company's top managers on the level of IT capital spending needed to execute their strategic plans.

The Shooting Stars have either taken the next step in the evolution of the IT organization, or are about to. That next step is the transformation of the IT organization from a cost center into a value center; and the CIO from corporate technology guru into a businessperson who speaks the language of his or her LOB colleagues.

This transformed IT organization has become totally aligned with the business' strategic goals and leverages the enterprise's technology to enable LOB man-

agers to meet their business objectives.

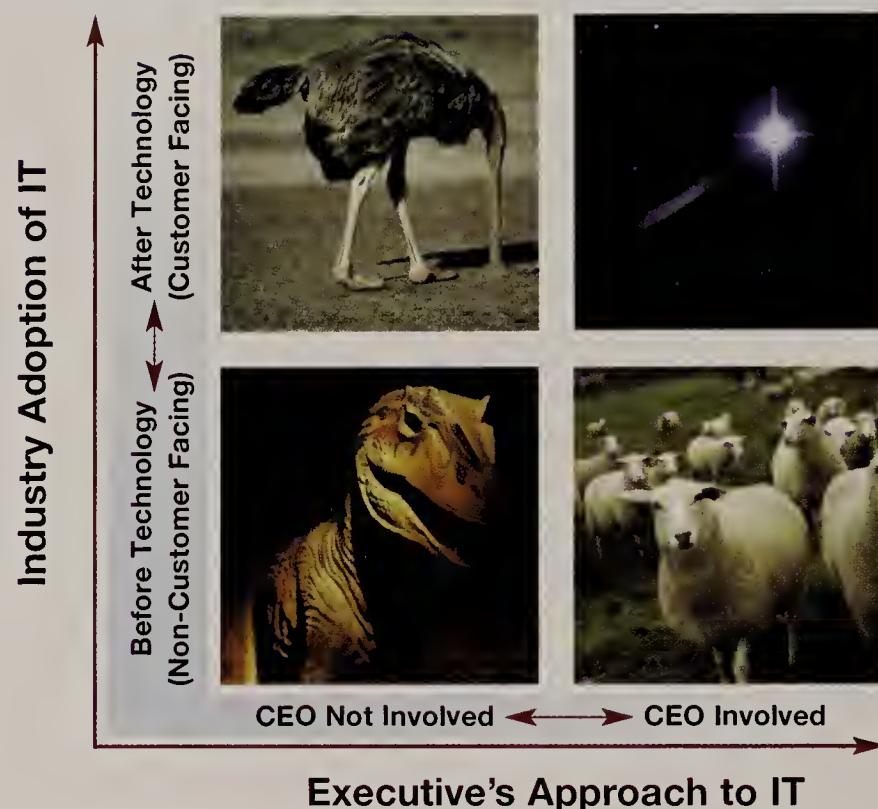
Because IT is now functioning as "a business within the business," the IT organization acts as an internal consulting practice and technology enabler. It helps its internal clients develop their IT spending—the LOB has total owner-

IT: A Brave New World

Over the past fifty years, IT has evolved from being technology-centric to almost completely user-driven. Now, IT must transition from being a cost center to a value center to get visibility within the enterprise.

Traditionally, IT has been viewed as overhead versus a revenue-generating business unit such as sales. In many cases, IT leaders have not been effective in justifying expenditures to the financial side of the enterprise—in business language—the resources IT requires, why it needs them, and how they will be allocated. Now, IT executives are realizing that if there is not a shift in thinking and an ability to demonstrate the tangible business value

ASSESSING YOUR IT DEPARTMENT



ship and responsibility for each project, including the IT budget. IT works on a chargeback, fee for services basis, using all the tools that a successful consultancy finds invaluable—e.g., engagement management, customer management, project management, time and expense management and billing.

The following white paper details many of the steps necessary to transform the IT organization and the role of the CIO. In addition to many of the issues mentioned above, the white paper looks at how the CIO can demonstrate Return on Value (ROV), an essential element in navigating today's difficult business environment and establishing a new relationship between IT and the enterprise.

contributed by IT services, their departments will be further scrutinized, and their budgets continually reduced, while more strategic initiatives are outsourced.

Some alarming statistics regarding the completion of IT projects further illustrate the point that IT budgets and projects are under greater scrutiny from business unit executives. For example, multiple surveys indicate that less than 30 percent of U.S. corporations that executed IT projects were successful, while the majority of projects were canceled before implementation, late, or over budget. As a result, IT executives must begin to have input on project selection, staffing and management.

The challenge, then, for IT executives in this brave new world is to strengthen

their business acumen, and adopt a model regarding project management, staff utilization, and chargeback that illustrates to other LOBs the value of IT's existence within the enterprise.

The process of transformation must be carefully architected. To successfully transition to a value center, executives must:

- Consider and treat IT as a business within a business.
- Align IT investments to corporate goals.
- Secure corporate-wide buy-in on a value center model.
- Recognize and plan for the cultural changes that will be required.

IT departments that embrace the fee-for-service or comprehensive chargeback model are aligned with the business, and will help transform IT into a business partner that provides value-added benefits to the enterprise by enabling it to achieve its strategic goals.

Enabling the Transformation

While many business unit executives view IT as a cost center, visionary IT executives have already set the wheels in motion to transform their departments into value centers that are aligned with business goals and strategies.

Enabling this transformation is not easy. IT executives need to change the way they view their operation, from its decision making processes through to its operational procedures and service level commitments. The following elements are key to enabling the transformation.

Managing IT as a business portfolio.

Large organizations juggling complex projects and/or sub-projects should consider a portfolio management approach. In today's economic environment, it is critical to target the IT investments that are best aligned with corporate strategy, and manage these

Managing IT as a LOB At Integris-Health

“A T INTEGRIS, IT is a business within the business,” says Avery Cloud, CIO of Integris Health's Information Technology Division.

Integris is Oklahoma's largest state-owned health system with hospitals, rehabilitation centers, clinics, mental health facilities, and home health agencies located throughout the state.

Cloud points out that “IT systems represent the circulatory system of the corporation, responsible for moving information throughout the organization. About a third of the trillion dollars spent every year on health-care is allocated to information processing. That's why we look at IT as a business—a big business.”

Cloud says there is a direct correspondence between the company's objectives and IT. Each IT project is associated with a corporate strategic goal. The project's success or failure is evaluated on how well it supports that goal.

“We use ChangePoint's Professional Services Automation (PSA) software to provide us with the information we need to make informed decisions regarding our IT resources,” he says.

The software runs on Windows NT in conjunction with a SQL database to provide a constantly updated central repository of project and resource information.

IT management tracks the time spent on each activity, monitors project status, searches for human and other resources, and, in general, gathers all the information needed for cost accounting and project management.

“When people arrive in the morning, the first thing they do—after getting a cup of coffee—is log on to the ChangePoint system,” Cloud says. “It's the center of their world.”

Cloud continued, “I can more effectively manage our division and make a compelling case for the importance of IT to the success of the organization. For example, I can tell top management and our board members exactly how many hours of labor was spent to accomplish the technology portion of a strategic goal. We have also minimized outsourcing costs, simplified performance review, and can more easily determine employee workload and on-time output.

“It's only through creating a powerful and efficient IT organization that you can meet the needs of the corporation,” Cloud states. “We now have an effective IT business unit whose contributions to the success of the corporation are completely documented and fully recognized.”

For the complete Integris-Health case study, please visit: www.changepoint.com/integris

investments like any other business portfolio by balancing the costs, risks, and potential value or return. IT portfolio management provides the basis for dynamically managing, evaluating, prioritizing, purchasing, and reviewing IT investments to meet immediate needs, and plan for the future.

Giving away the IT budget. To dispel the notion that IT is an unaccountable cost center, IT executives must effectively allocate expenses to the appropriate business units. By implementing a comprehensive chargeback structure that includes both activity and infrastructure-based charges, IT executives will ensure that the LOBs are more tightly integrated with spending decisions. While the notion of chargeback has the potential to be politically explosive, there are benefits to both IT and its customers. For example, when IT and the LOBs collaborate on expenditures, the outcome is a more natural alignment of IT activities with the business. The goal is not to become a profit center, rather to run an efficient business operating at a zero-sum balance.

It is critical for IT executives to have senior management support to provide for a smooth transition to a fee-based model. The transition is also made easier if they employ a chargeback fee methodology and structure that business-unit executives can understand, acknowledge as equitable, and that provides value to them in their decision-making processes.

In a fee-for-service model, IT is not guaranteed to be the provider for projects that LOB executives wish to initiate, and will need to differentiate itself from external competitors. One way to do this is to bid on a per-job basis, instead of basing bids on time and materials. Another



"THERE IS A NEED TO CREATE a powerful IT organization, and often, CIOs are the cobblers whose kids have no shoes. When time and cost overruns occur and projects become unmanageable, managers need the time and tools to get the IT machine together so that it can again churn out quality products —otherwise it will crumple under its own weight. IT executives must be able to sell the idea to LOB executives that they, too, need the time and resources to put their infrastructure in place so that it can respond to corporate demands."

—Avery Cloud, CIO of IT for Integris-Health

strategy is to divide projects into sub-projects, and develop a reputation for getting the job done on time and on budget. The IT department should also leverage its "home team advantage" by demonstrating that it is knowledgeable about the enterprise's business processes and culture, and therefore in a much better position to be successful.

Building efficient business processes.

The economic downturn has forced many businesses to reduce operating budgets, trim or re-deploy staff, and scrutinize all expenditures. To work at peak efficiency, IT executives must review their own business operations. They will then need to think like a fee-for-service organization, recognize that these processes are interrelated, and change relevant processes to become more efficient. For example, the IT organization will need to examine how it recruits, retains, deploys and rewards employees. It will also need to re-evaluate how it manages project workflow, T&E capture, staff allocations and user requests.

In short, IT executives will need to examine the efficiencies of their own business processes and organize them to reach the outcome of truly managing IT as a business portfolio.

Managing human capital and controlling staffing decisions. With IT budgets tightly linked to LOB initiatives, business unit executives now have greater decision-making power and accountability over how the monies are distributed. IT may need to look for innovative solutions—whether it means redefining the IT organization structure, redefining roles of staff within the organization, or working more closely with human resources (HR) to identify talent from within the department or the organization to staff projects.

IT executives must also determine if they have skill sets that are aligned with present and future corporate objectives. It is equally important to know if the right staff members are assigned according to their talents and the priority of the projects. To maximize the performance of their organizations, IT execu-

tives need to have credible metrics on staff utilization. By operating with a fee-for-service model, IT executives will have the data available to examine productivity in the same manner as external professional services organizations. A focus on resource utilization not only encourages efficiency, it also ensures

that top performers are recognized, and conversely, that underutilized staff are either redeployed or replaced.

To create a culture in which employees feel motivated, IT executives need to provide opportunities for training and education, holistic performance planning and reviews, and

compensation programs to develop, build, and sustain crucial talent within the organization.

Managing LOBs as customers. By adopting a customer-centric approach, IT can effectively compete with external service providers, deliver value to its business unit "customers," and establish itself

PSA Helps Sprint Canada Integrate the Technology Organization into the Corporate Strategy Process

WHEN THE TELECOM INDUSTRY began its downward slide, Sprint Canada's parent company, Call-Net Enterprises Inc., had already anticipated trouble and battened down the hatches. As a result, Call-Net is now one of the only three surviving active Competitive Local Exchange Carriers (CLECs) in Canada. Not only is the company surviving, it's thriving.

Headquartered in Toronto, Sprint Canada, a wholly owned subsidiary of Call-Net Enterprises, offers voice, data and online services to consumers and businesses.

Planning ahead has assisted the company as it weathers the telecom storm. For example, in 2001, the company deployed Changepoint professional services automation (PSA) software with the primary goal of making IT and other functional units critical for project delivery a part of the front-end corporate strategic planning process.

"Previously, marketing would define the upcoming projects and then hand-off to technology organization for implementation," explains Zoran Stakic, Vice President, Corporate Project Management Office and Strategy Implementation. "This was a time consuming and potentially error prone process. In today's telecom environment, we have to continue to introduce operational efficiencies, increase customer satisfaction and shorten time-to-market. It became obvious that IT and other delivery organizations had to become part of the strategic planning process from the very beginning. To do this, we needed new, powerful tools to track the progress of each project.

"Using the PSA software, we have improved the

accuracy of planning human resources, corporate knowledge, and other resources needed for each project," says Stakic. "We then combine all the proposed business projects to determine total resource requirements. This also allows us to spot potential bottlenecks."

"Once the projects are underway, we track resource utilization for each project life cycle," he continues. "This makes for some interesting ways to manage risk. For example, if we discover that resource demand is greater than anticipated but the project is still going strong, it probably means that resources are being pulled from other projects, which may cause delays."

Stakic says his organization is now able to compare estimated expenditures and resources to the actual cost incurred and resource utilization during each project's life cycle, allowing the company to sharpen its predictive skills.

"We anticipate significant gains in operational efficiency at the detail level once the implementation of the PSA software is complete," he says. "In the meantime, we have already begun to realize a number of benefits that are hard to quantify, but very important. For example, because the quality and availability of information has dramatically increased, our senior executive team and middle management are now making far more informed decisions. This in turn is helping to position the company to take advantage of new market opportunities."

For the complete Sprint Canada case study, please visit: www.changepoint.com/sprint

as the preferred provider. To achieve this, IT must establish service level agreements (SLAs) with its customers in order to set expectations, and then manage them from both IT's and its customers' perspectives. The onus is on IT to provide varying levels of service options, ensure that its customers not only approve, but also understand the process, and readily have access to all required information. To do this, IT will need to employ strategies gleaned from the way in which competitors do business.

When charging for services, quality of service (QoS) is critical. Key here is IT's ability to provide its customers with timely and accurate reporting, the ability to electronically see project status, and to send appropriate reminders so that milestones are not missed. By focusing on QoS, IT can prevent expensive errors and missed deadlines. Mismanagement by IT of the customer relationship can foster ill will and mistrust, whereas professional and flawless management of projects will engender trust and belief in the ability of IT to get the job done, competently, efficiently and effectively.

Culture and change management. The success or failure of any initiative is not so much the result of technology, as much as the culture of the organization and the mind-set of its executive team and employees.

"IN ENABLING the transformation of Sprint Canada's technology group from a cost center to a value center, our team, led by our Chief Technology Officer, Serge Babin, became proactively involved in working with business units' executives to align proposed projects with strategic business goals, gather realistic platform-based requirements, and perform risk assessments for the overall project portfolio.



Having IT and other functional units that are critical for project delivery participate in the project portfolio planning and prioritization process is enabling the technology organization at Sprint Canada to morph from a delivery organization to a valued business partner."

—Zoran Stakic, Vice President of Corporate Project Management Office & Strategy Implementation (CPMO&SI) for Sprint Canada

Enabling the transformation is not an easy task, but one that is made easier with the active support of senior management. It is imperative that operational changes are directed by senior executives to ensure that a single vision is clearly developed and understood by those involved with the changes. Gaining user acceptance will ease the transition period, and make the training effort more rewarding.

Communication is key. It is important to communicate not only the vision, but also the role that each individual will play in achieving that vision. Employees should be made to understand the business rationale, the resulting organizational and role changes, and the anticipated impact to the company. IT executives should invite participation and commentary from the LOBs. Agreement by all parties on how the changes should be marketed to the rest of the organization will go a long way toward a smooth transition.

Changing the perception of IT. IT departments are often perceived by senior management to be the root cause of what are, in fact, business process failures. More often than not, the corporate IT department becomes the corporate scapegoat for problems that are business-process in nature, yet manifest themselves in IT applications and activities. An IT department that wishes to transform itself into a value center will need to better understand the business it serves, so that it can help ferret out the source of problems, not simply assume that technology is the remedy.

Demonstrating Return on Value

Recognizing and making the decision to transform IT into a value center is the first crucial step in an iterative and dynamic process. The second is looking at how to enable the transformation. The third step is overcoming the political issues, and demonstrating the value of this concept and fee-for-service model to the enterprise.

Executive management and LOB executives are demanding return on investment (ROI) from IT on all investments. ROI, however, is singularly focused on the financial or hard dollar

return, and limited in its ability to communicate the business value of IT.

A more practical and realistic measure of IT is ROV, which extends the classical meaning of ROI to include both financial and intangible benefits to provide a holistic view of IT's performance and impact on the business.

IT's return on value to the enterprise is two-fold. The first is improvement to IT as an "operating" business unit. This means improving the way in which IT is addressing its own operational efficiencies. The second is demonstrating the value IT provides to its LOB customers by enabling them to improve their own business performance, thereby positively impacting the company as a whole.

Operational ROV. By adopting a fee-for-service model, which emphasizes a consultative customer relationship, IT is transformed by a new focus on business-oriented metrics. The result is business efficiencies that are perceived to be of real value by the rest of the organization. As a result of capturing the data required in order to charge for services, IT departments can now truly manage distribution of effort amongst strategic portfolios, manage staff utilization levels to get more from internal and external resources, recognize and retain top performers, speed project completion, and improve customer satisfaction. In addition, operating as a business enables IT to communicate externally in terms other business units can understand, thereby demystifying IT, and breaking down traditional communication barriers.

Customer ROV. The result of a top-performing and consultative IT organization is positive business impact for its clients. Operational efficiency ensures that initiatives for other business units

are completed quickly and at a reasonable price, thereby enabling the realization of demonstrable returns, as well as competitive advantage. Tightly managed portfolios and resources also reduce risk, as project health and progress are constantly monitored, and as a result, failures reduced. In addition, this new operating model will enable both IT and its clients to make rational and reasonable outsourcing decisions. As cus-

“No matter which path an organization takes to automate its business processes, it is critical that the most senior executive in the IT organization explain to all employees why a change is being made in business models.”

tomers of an efficient internal provider, there will be fewer, but more obvious areas where outside vendors could be more cost effective.

IT's transformation to a value center is not the endgame, rather an ongoing process, shaped or influenced by changing internal and external conditions. Management support and two-way communication with the business unit executives ensures that there is understanding of the benefits for the individual business units and the company. IT must continue to convey the operational value to the company, as well as the benefits for each customer around distinct projects in order to gain ongoing support.

The Time to Act Is Now

Just as corporate business processes have been automated over the years, so too must IT organizations consider redefining and automating their own processes. Embarking on chargeback and client-centric operating models

without supporting business systems can be extremely risky. To manage like a business, IT departments must do so with the same rigor as would an outside service provider.

The move to charge for all work performed requires commerce-oriented systems that align the organization in a customer-focused way. Without integrated business management systems, the additional demands on process and

data associated with a fee-based service model can be daunting. Automated solutions can help IT executives effectively streamline operations, improve employee productivity and communicate value to clients.

Technology enablers such as Professional Services Automation (PSA) solutions can help facilitate the transformation of IT into a value center, as well as measure and demonstrate the value of IT to the enterprise.

These solutions can also help IT executives gain a better understanding of expenses so that they can demonstrate to senior management how IT resources are being deployed, how they can be better allocated, and how this can impact the enterprise's P&L. In addition, use of such solutions may enable IT to have a direct and positive impact on a company's profitability through optimal utilization of resources, resulting in IT-enabled products getting to market faster.

No matter which path an organization takes to automate its business processes, it is critical that the most senior executive in the IT organization explain to all employees why a change is being made in business models.

Equally as important is the need to express that this new way of operating is mission critical and the responsibility of every employee. For example, the submission of time and expenses on a regular basis by every employee, while foreign to some organizations, is no longer optional.

IT must assume a "marketing" role to secure buy-in from its own staff, as well as when communicating the notion of transformation and impact of change to external business units. User acceptance is imperative to facilitating transformation, and often, it is the most daunting and underestimated aspect of the entire process because of its political implications and its volatility.

IT executives should seek solutions that help position an organization to operate like a fee-for-service firm. Functionality should include integrated:

- **Portfolio Management**—to ensure effort and budget are deployed optimally in line with business objectives.
- **Client Relationship Management**—to ensure customer satisfaction is pushed to the forefront.
- **Engagement Management**—to ensure financial rules and data are tracked appropriately.
- **Budget Management**—to ensure that budget planning is accurate, and adhered to over time.
- **Project and Task Management**—to ensure that projects are on time and on budget.

Things to consider when choosing a business process automation solution:

- Research product functionality, maturity, and vendor stability in the marketplace.
- Consider securing the assistance of an analyst firm in selecting a short list of vendors.
- Conduct your selection through a request for information (RFP) process.
- Evaluate vendor understanding of, or willingness to learn about, its customer's business.
- Understand the ease of integration with existing systems.
- Seek vendors with proven track records and mature implementation methodologies.
- Work with a vendor that can show you your own business modeled within their software as part of the sales process.
- Understand vendor product support and maintenance agreements.
- Consider required levels of customization and associated costs.
- Ask to speak to reference customers with similar needs.

- **Resource Management**—to ensure proper management and deployment of human capital.
- **T&E Management**—to ensure accurate and appropriate distribution of charges and allocation of effort.
- **Cross Charging/Invoicing**—to help facilitate chargeback and associated workflow.
- **Reporting**—to track performance and metrics for assessing departmental performance.
- **Employee Collaboration and File Sharing**—to ensure coordination among staff and proactive management of customer satisfaction levels.

Conclusion

The Robert Frances Group believes IT executives must work proactively to transform IT from a cost to a value center; otherwise they will risk becoming outsourced. Transformation to a value center requires support from senior management in all lines of business to succeed. The entire company must recognize the need for change and the resulting benefits of supporting an IT organization that charges for services. While the initial change will be challenging, the benefits far outweigh the risks, and enable IT to:

- Improve internal operational efficiencies.
- Demonstrate that it can prioritize its project portfolio in line with the business.
- Use credible metrics to demonstrate return on value.
- Have a positive impact on a company's P&L.
- Enable competitive advantage by getting products to market faster.
- Improve the image of IT by providing exemplary service.

Senior management should set the vision for how technology services will be delivered internally, and clearly define user responsibilities, while senior IT and LOB executives should perform internal marketing to gain acceptance and ease the transition period.

Companies that successfully make this transition as proactive thought leaders will reap the benefits, as successful use of technology continues to be the way leadership in many industries is won or lost. •

To download this white paper, please visit: www.changepoint.com/downloads
For questions or more information, please contact: The Robert Frances Group at www.rfgonline.com



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DIFFERENT VOICES

BUILDING STRATEGIC PARTNERSHIPS TO TRANSFORM THE BUSINESS

SHARED VISIONS

THE SUCCESS OF ANY I.T. OR BUSINESS INITIATIVE relies on our ability to build strategic partnerships with corporate and business unit management, key suppliers, vendors and customers. That success will only come when many different voices embrace shared visions. To get there, we need solid strategies, clear prioritization, understanding and buy-in—along with the right infrastructure and resources in place. Join us as your CIO peers share visions on ways to create new business value, a higher ROI and more strategic deployment of technology.

A person in a dark suit is shown from the chest up, with a plume of white smoke or steam rising from their chest area. The background is dark and moody.

SIX DANGEROUS MYTHS

ABOUT e-BUSINESS PLATFORMS.

THE WHOLE e-BUSINESS THING IS A FAD.

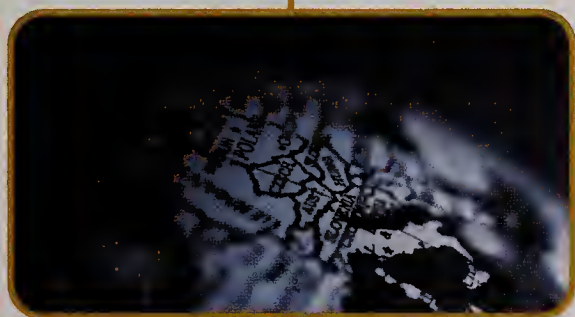
Nothing could be further from the truth. In times of economic downturn, it may seem prudent to put the whole e-Business issue on the backburner. But it's not. Tough times call for speed, nimbleness and agility more than ever. The time to get smart and implement e-Business solutions for your customers is today.



THE INTERNET CHANGES EVERYTHING.

The Internet does not change everything. It doesn't change the business rules that run your company. Or the infrastructure you've spent years building. Or the nature of your business. Or your need to generate revenues and profit.

The Internet is obviously a critical part of any e-Business. But the Internet is only a common set of protocols for the transport of information. It's how well you manage that information that determines the success of your business.



IT'S A ONE-BRAND WORLD.

This myth surrounds just about every significant e-Business platform discussion. Virtually every purveyor of e-Business platforms touts their version of this "one-brand" world. Their brand, of course. Big surprise.

At Sybase, we know it's just not true. Countless brands compete,

cooperate and commingle inside your company. It's laughable to pretend that any one external organization can "standardize" all the various protocols, systems, components, new technologies, languages, databases and vendor relationships that your business depends on to succeed.

Our open e-Business platform embraces diversity. Making all of this stuff work together is what our stuff is all about.

A WEBSITE IS A PORTAL. A PORTAL IS AN e-BUSINESS.

Well, not quite. A website is not a portal. And even if it was, a portal is not an e-Business.

Portals and websites along with application servers, databases, customer relationship programs, automated supply chains, an efficiently connected field force and the rest of your back office are all vital components of an e-Business. It's making them work together that's the trick.

Unless your data has the ability to travel from a customer's pager to your trusty OS/390 mainframe and then back to your customer via cell phone, you may very well have a website, but you really don't have an e-Business.

Our proven e-Business platform totally delivers this end-to-end functionality. It integrates every single aspect of your business. What's more, it has the scalability to constantly integrate your new components into the mix. Like say, 10,000 brand new customers, for example. Or a new CRM app.

Just something to think about when people offer you buzzwords instead of technologies.

IF AT FIRST YOU DON'T SUCCEED, THROW SOME MORE MONEY AT IT.

Hah. Very funny. But still a popular belief for a long time. Listen: It's all pure poppycock. The real e-Business solutions deliver real-life business results. By that we mean increased revenues, reduced costs and profit to your bottom line.

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years since we returned to the United States from Kuwait, but at the time we left, in 1996, there was no Internet service available in the embassy, and barely any in the country. I was completely unaware, actually, of how huge an impact the Internet had on the world at that time. We were still on Wang computers that were using 20-year-old technology even then. They were our only connection to Washington, D.C.

One area that the lack of e-mail service has impacted is recruiting. The new FSOs, often twentysomethings, have

important national issue that is unrelated to the focus of CIO.

Your article was certainly a very good illustration of the CRM application used to deal with a rapidly changing environment. The company I work for employs CRM tools for much the same reasons. However, I find it disturbing that you would choose Planned Parenthood to illustrate your point. Is this the only nonprofit organization you know of that employed CRM to solve post-Sept. 11 issues?

Whatever your reasons for choosing this organization as your focus, I

draft, I had cited two other organizations that were able to connect their mission to 9/11, and as a result, it turned out those organizations were not suffering from a diversion of funding. My editor had asked me to write a short piece on how nondisaster-recovery-related nonprofits were using CRM to deal with the diversion of funding. In the end, Planned Parenthood was a perfect example.

CIO is dedicated to covering the ways in which organizations use technology to support their missions and strategic goals, and that mission hasn't changed since the magazine first launched in 1987.

I hope my response clarifies the intentions of this article.

Training will help only those individuals who want to make the change. The remainder need different strategies to change their mind-set. Changing culture requires collaboration.

been computer literate for a decade or more and are not inclined to want to go anyplace where they won't be online. These new officers will be the ones to institute change.

Susan Tyson

Teacher

Pine Spring Elementary School

Falls Church, Va.

sgtyson@aol.com

CRM CHOICES

I'm writing to ask for clarification on an article you wrote for the Feb. 1, 2002, issue, "Nonprofit CRM: Donated Dollars Diverted" [Trendlines]. In this article you used several phrases—such as "warning them of the impact the Bush administration would have on *Roe v. Wade* and on funding for family planning," "the once bumbling president rose to the occasion" and so on—that collectively appear to represent a strong position on a very sensitive and

don't understand how those statements could help to illustrate your point about the use of CRM tools by nonprofit organizations.

As I read the article, I found myself distracted and, more to the point, deeply offended that a magazine that is focused on the concerns of CIOs and IT professionals would take any position at all on the issue of abortion and the current presidential administration.

Steve Denman

stevedenman@usa.net

Senior Writer Meridith Levinson Responds:

Thanks for taking the time to read and respond to my piece.

I spoke with several nonprofits using CRM tools to encourage their constituents to donate while the economy was uncertain in the aftermath of 9/11. Planned Parenthood was not my first choice to use as an example. In a first

A PLAN FOR THE WORST

The article "Finally, a Real Return on Your Security Spending" in Feb. 15, 2002, was outstanding. It's about time someone wrote about this. I have been in the data storage and security field for the past five years. The biggest obstacle I find is that CIOs and top-level executives do not want to talk to you or think about what they will do in case of a disaster—until it really hits them, and then it's too late.

My success is based on proving to the CIOs what the costs would be if they had a breach of protocol and what it would cost to fix it and be prepared for the next one. That's when the wheels start to turn.

Daniel Tobok

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WHAT DO YOU THINK?

Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.

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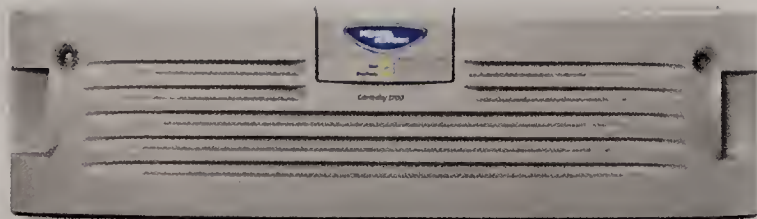
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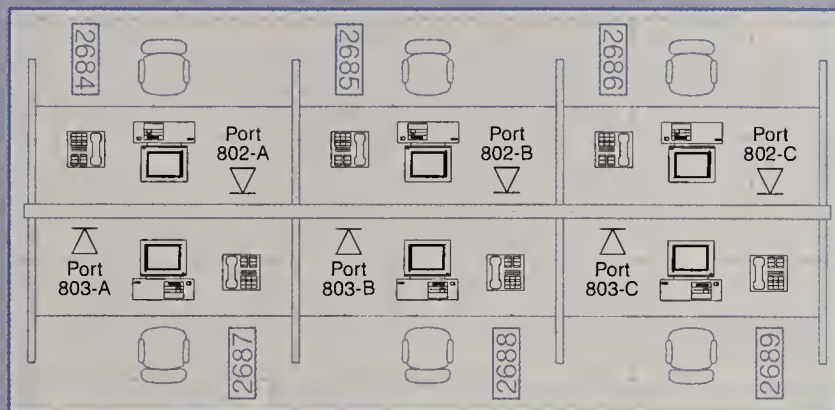
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DOCUMENT MANAGEMENT

The Golden Rules

By Alison Bass

IN THE DRIVE to link medical data from hospitals, clinics and doctor's offices, California is once again leading the charge. Exchanging medical data online can eliminate medication errors and streamline health-care costs. Until now, physicians, wary of for-profit entities and protective of patient confidentiality, have resisted the idea.

Two Golden State nonprofit groups are in the throes of building online data exchanges—the first in the nation to let hospitals, clinics, doctors, pharmacies and labs in a given area share patient data. The nonprofit Santa Barbara Regional Health Authority funded the first and most comprehensive effort, the Santa Barbara County Data Exchange—an exchange that will link hundreds of health-care providers.

"If one of our students is injured on the

weekend and shows up in a local emergency room and then on my doorstep a few days later, the exchange would allow me to access online any X-rays and lab tests that were taken over the weekend," explains Dr. Cindy Bowers, director of student health service for the University of California at Santa Barbara. "This way, I can treat the patient without waiting for a fax or hav-

ing to make 29 annoying phone calls to get the information I need."

Funded by a three-year, \$10 million grant from the California Health Foundation, the Santa Barbara County Data Exchange has already grappled with the thorny issue of data access. The Philadelphia-based vendor working on the project, CareScience, has installed security and password protections.

The project has moved into beta testing, during which nearly 50 physicians were able to access results from several local labs. Radiology results went online in March via a Web-based browser. Pharmaceutical and administrative data is scheduled to be online by the end of the summer. The intent is to link 1,500 providers in the

Continued on Page 36



Department of BIG, Scary Numbers

1.2 MILLION: Number of unique visitors to Superbowl.com on Super Bowl Sunday (compared with **195,000** the Saturday before). **1.4 MILLION:** Number of unique visitors to the NFL Internet Group sites, which include NFL.com and team sites, on Super Bowl Sunday (compared with **378,000** the Saturday before). **681,000:** Number of unique visitors to AT&T's Mlife.com site on Super Bowl Sunday (compared with **34,000** on the Saturday before its ads appeared). **135,000:** Number of unique visitors to Pepsi.yahoo.com—voting for their favorite Britney Spears Pepsi ad—on Super Bowl Sunday. The site had no reportable traffic the Saturday before.

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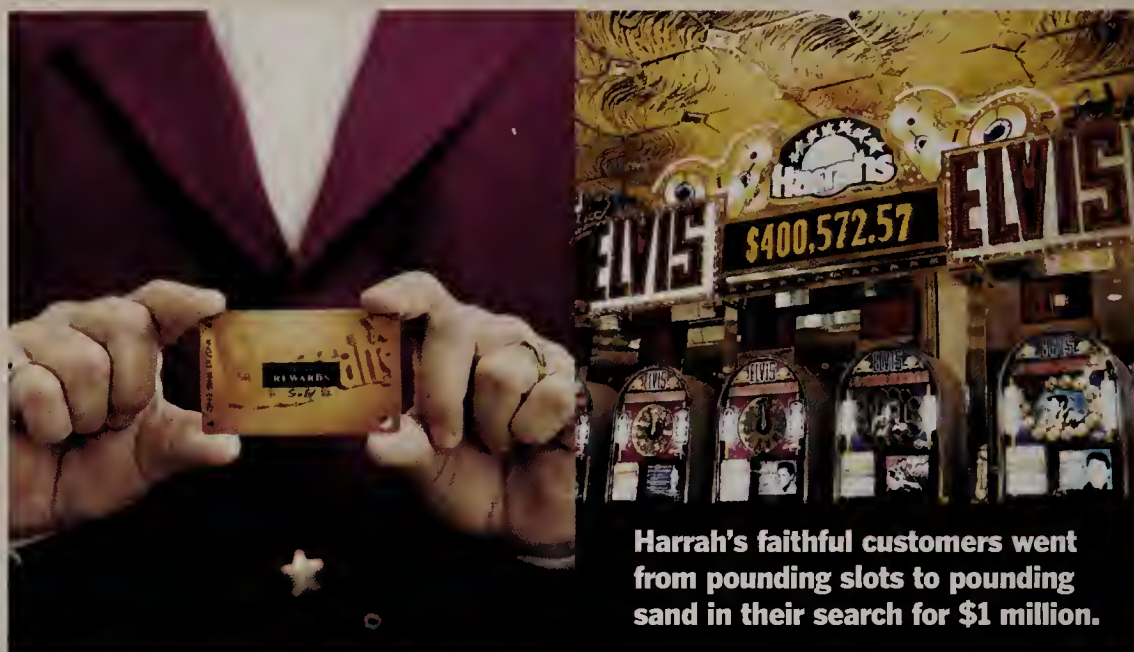
Golden Rules

Continued from Page 34

Santa Barbara area with crucial medical information on approximately 300,000 patients.

The second project, the Patient Safety Institute (PSI), funded by an \$8 million grant from nine area technology companies, is more limited in scope and at a much earlier phase. It will help physicians retrieve patient data to improve decision making when prescribing medications. "Say, for instance, a physician wants to prescribe digoxin, the most commonly prescribed heart medication," says Dr. Jack Lewin, executive vice president and CEO of the California Medical Association and chair of the new nonprofit Institute. "In order to prescribe that drug, you need to know that the patient has normal kidney and liver functions and normal blood potassium levels, or there could be fatal side effects. This [computerized data exchange] will allow the prescribing doctor to find out what has been prescribed for the patient previously and what medical conditions they have."

While an increasing number of hospitals are installing computerized exchanges in their own networks for inpatient use, the PSI and Santa Barbara projects cover the much larger and thornier domain of maintaining and securing data for outpatient care. If the Santa Barbara project can bring sensitive patient data online and keep it secure, it will boost the prospects for a nationwide medical data exchange.



Harrah's faithful customers went from pounding slots to pounding sand in their search for \$1 million.

C R M

Run for the Money

PICTURE THIS: On Saturday, Nov. 10, 2001, 20 people gathered beneath the blazing sun in the desolate Nevada desert after months of nerve-wracking preparation. They had no idea where they were going, but they knew just what they had to do. Furnished with a guide and a map, each person set out in an SUV in search of a treasure chest hidden amid the cacti and tumbleweed. The chest contained a cool \$1 million.

Sound like a final episode of *Survivor*? It's not. It's Las Vegas-based Harrah's Entertainment's latest marketing scheme, based on the company's Total Rewards customer loyalty system (see "Jackpot!" on www.cio.com/printlinks).

To enter the treasure hunt, Total Rewards customers applied credits earned from playing slot machines and video games toward an electronic entry form. (Customers could also request a free entry by mail.) Swiping their Total Rewards card through a designated Total Rewards Treasure Hunt computer on the casino floor linked customers to a system that calculated the number of contest entries for which they were eligible based on their level of play that day. "Over the course of the year, you can generate thousands of entries," says Tim Stanley, Harrah's vice president of information technology.

To select the lucky 20 who would participate in the treasure hunt, the corporate IT group wrote a software application that gathered the electronic entries from the casino floor systems and randomly drew one person from each of the 20 properties operated by Harrah's Entertainment, Stanley says.

—Meridith Levinson

“When I started, most [government agencies] didn't have CIOs, and those that did kept them stapled to the wall and handcuffed. Now they at least acknowledge that I exist, although they still don't know what I do. I get pulled off the wall to work miracles.”

—James Albert, CIO of San Francisco Municipal Railway Department

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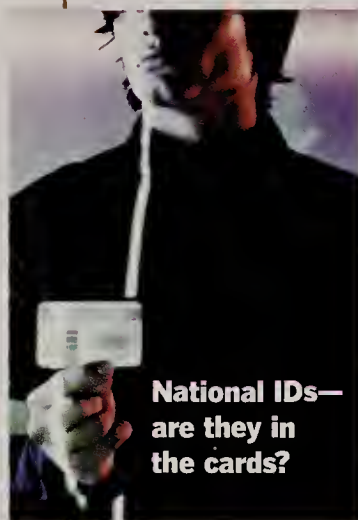
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Washington Watch

Edited by Janice Brand

Getting Carded: The National ID Debate



WHAT'S NOT TO LIKE about the security a national ID card could provide? Plenty.

Congress's desire to move forward with a standardized driver's license, or national ID card, has implications beyond civil rights. CIOs in industries such as airline, car rental and retail will have a decision to make. If they purchase the technology necessary to read critical information from the licenses, they will have to put serious money down—to the tune of \$60 million, according to John C. Hervey, CTO for the National Association of Convenience Stores (NACS) in Bowling Green, Ky.

The magnetic strip on driver's licenses can store up to three tracks of information. The majority of information is currently held on the second track. However, many of the proposals floating around Congress suggest putting information on the more secure third track, which some electronic readers can't scan. Hervey says NACS has been working closely with the American Association of Motor Vehicle Administrators to come up with license standards, but their joint requests to put the information on a track that is already accessible have gone unanswered. With the various proposals for national ID cards debating the inclusion of such things as basic citizen information, like gender and other physical characteristics, and Sen. Dick Durbin's (D-Ill.) idea to use biometric indicators, the current scanning technology could be obsolete. It's not only the cost. According to Hervey, it can take seven to nine years for convenience stores to replace the outdated equipment—possibly longer for airlines.

CIOs shouldn't overlook the privacy implications either, says Sonia Arrison, director of the Center for Technology Studies at the San Francisco-based Pacific Research Institute, a policy analysis organization. If the government ultimately sets the standards for the

ID card, CIOs will need to take a hard look at whether they want to buy into a system when "the government has yet to demonstrate it can keep its own systems secure," Arrison says, referring to the recurring privacy problems on government websites.

At press time, no proposals had passed a hearing stage, but Hervey thinks there are ways to make a national ID card work should it become law. He points to success with electronic debit cards, which replaced food stamps in convenience stores; the states provided stores with the new readers. With such assistance, retailers could comply with the law in a way that wouldn't cost them financially, although implementation would still take time. But state assistance won't help with the privacy issues, which will likely move to the forefront of the debate.

—Stephanie Viscasillas

Cybersecurity Bill Update

THE PASSAGE OF the Cyber Security Research and Development Act has put technology, and consequently technology workers, on the front lines of the war on cyberterrorism. Originally introduced by House Science Committee Chairman Sherwood Boehlert (R-N.Y.), the bill addressed the possibility of a terrorist attack via the Internet and charged two organizations with providing experienced people to fight back. The National Science Foundation will create research centers and offer community college and undergraduate grants to promote technology education. The National Institute of Standards and Technology will create program grants for partnerships between people in the technology industry and academia, and also offer a program to encourage people already in the research field to work on computer security. The bill gives \$880 million over five years for the programs. Diane Smiroldo, vice president of public affairs for Business Software Alliance, a key supporter of the bill, says this is the first step toward preparing the country for a war waged in cyberspace.

—S.V.

“If innovation and new technologies profoundly shaped the 20th century, they will define the 21st. But just as technological progress opens doors of possibilities, it also creates friction and challenges.... As the biometrics industry matures, it will be no exception.”

—Bruce P. Mehlman, assistant secretary for technology policy in the Department of Commerce, at the Biometrics Consortium Conference

NATIONAL MARKET ISSUES

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STAFFING

Loyalty, Shmoyalty

By Megan Santosus

THE CURRENT JOB MARKET is decidedly confusing. While headlines are filled with stories of massive layoffs and abrupt bankruptcies, CIOs still struggle to find and retain skilled employees. According to Peter Cappelli, director of the Center for Human Resources at the University of Pennsylvania's Wharton School in Philadelphia, the labor situation—coupled with Web-based recruiting and job listings—is changing how people view their career, their employer and how they go about conducting job searches.

Speaking late last year to HR executives at a forum, "Managing in Tough Times: Perspectives on Leadership and Change," Cappelli noted that talent management is still one of the top challenges for employers. With top performers in an organization contributing anywhere from five to 22 times more value to their company than midlevel or low performers, managers have to do a better job of both identifying and compensating them. In general, companies pay their best employees only 10 percent to 15 percent more than the laggards, says Cappelli. It doesn't take a serious number cruncher to figure out that a competitor can offer top people a hefty pay raise to

Identifying and compensating top performers can help prevent them from jumping ship.

entice them to jump ship and still stay in the black.

For most people, long-term employee loyalty has gone the way of the 40-hour workweek. With millions posting their résumé on job boards like Monster.com and Dice.com, it's a lot easier for companies to find the top talent and lure them away. Hence, managers looking to attract and retain the most valued employees need to do a better job of selling both their company as a place to work and their jobs as a place to further one's career, Cappelli says. Among his top picks for companies doing it right are Amgen, Booz, Allen & Hamilton, and McKinsey & Co.

Today's employees are more inclined to proactively take charge of their own career, he adds. Companies that market themselves with that in mind may have an advantage when it comes to landing and keeping the best of the best.

LEADERSHIP

Fighting the 9/11 Recession

NORMAN YERKE REFUSES to participate in the current recession, and he wants you to do the same. Yerke is the creator of www.americanbusinessfightsbback.com, a website that calls on businesspeople to share their best practices for fighting the economic downturn, or what he calls the terrorist-induced recession.

There are a handful of ideas posted on the site, ranging from big moves like letting clients skip two months of payment for a fee, to tiny sacrifices like giving up your morning coffee break to be more productive. Yerke, CEO of investment bank USADeal-maker in Waukesha, Wis., says he hopes to get executives thinking positively and creatively about avoiding layoffs.

"For this to be effective we have to get employees involved, we have to get CEOs involved, and presidents of companies and chambers of commerce involved," Yerke says. "If all of us get together we can keep people working."

That's just how the website came about. Shortly after the Sept. 11 attacks, Yerke met with other Midwestern business leaders to discuss what they could do to help the economy. They decided to launch the website, and two Illinois companies donated their time and money for the site: Professional Consulting Services created the design, and DataFlo is the ISP.

Yerke admits it's taking a while for the site to find its audience, even though he has sent mass e-mails and a message to the White House. Still, he is confident his initiative will catch on. "Americans are very positive people," he says. "The more we can get people thinking positive, especially in business, the better off we'll be."

—Sarah Johnson



Privacy, Security, Personal Health Records and the Enterprise

The Health Insurance Portability and Accountability Act (HIPAA) of 1996 is federal legislation that is little known and even less understood outside the health care industry. And yet HIPAA has the potential to impact every business in the United States.

The legislation's original provisions focused on protecting the privacy and security of personal health records (PHR) and have been of great concern to CIOs in the health care industry. However, the provisions should also be of concern to non-health care organizations that maintain personal health records of their employees.

In addition, because HIPAA provisions come into play whenever and wherever technology and employee health records intersect, they have a direct bearing on an enterprise's IT infrastructure.

Growing Concern

Privacy, security, and business continuity in health care as well as every other networked industry, have become key issues for industry, government and citizens, and this trend will increase in the coming decade. These issues have also gained impetus as network intrusions by computer viruses have become more prevalent in recent years. The threat of new and more virulent computer worms and viruses has heightened the level of consumer awareness and concern about the use or misuse of their personal health records (see sidebar next page).

This is not a law that can be ignored. HIPAA is stringent, comprehensive, and has teeth—noncompliance can result in substantial fines and even imprisonment. As one health care expert wryly observed, "Management needs to know that violating HIPAA can mean going from pin-stripes to prison stripes."



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The good news is that the law is being enacted in stages, and there are provisions for extensions. Also, many people, including members of the vendor community, are expending considerable effort to help companies understand and comply with the Act's provisions.

CIOs and HIPAA

Mark Lutes, an attorney with Epstein Becker and Green's National Health Law practice in Washington, D.C., has extensive experience dealing with HIPAA-relat-



What Is HIPAA and Why Should You Care?

ed issues and has numerous clients in the health care industry.

Lutes says that CIOs affected by the legislation fall into three categories:

- 1** CIOs of companies that are direct covered entities under the rule—insurance companies, health care providers, and claims clearing houses, for example
- 2** CIOs with vendors and business associate organizations that interact with these direct covered entities and come into contact with their employee health records
- 3** CIOs of any company in the United States that provides and maintains an employee welfare benefits plan

"The portion of HIPAA dealing with transaction processing and code sets is final and has an October 2002 compliance

date," says Lutes. "This affects companies using EDI [electronic data interchange] to communicate personal health records. As of last April, HIPAA's privacy rules went into effect, but the Office of Civil Rights, charged with enforcing these rules, will not levy penalties until after 2003. The security rules are in the last stages of approval. However, the core concepts of the security rules are already found in the privacy rules. These require covered entities to have approved physical, administrative and technical safeguards in place around personal health care information."

HIPAA recommends that organizations providing electronic maintenance or transmission of health information assess potential risks and vulnerabilities, both physical and electronic, to the individual health data in its possession. Once an organization has accomplished this initial phase, it is required to develop, implement, and maintain appropriate security measures. Most important, these measures must be documented and kept current.

Stages of Readiness

According to Dr. Larry Ponemon, CEO of the Privacy Council in Dallas, "The large corporations that are aware of HIPAA requirements are doing the best job of getting their houses in order and understanding where the law can cause problems. Many of these organizations have out-

sourced HIPAA implementation and maintenance, or turned to consultants to get the job done, particularly if health care is not core to their business.

"But, unfortunately, many organizations have either not thought about the new regulations or taken little action because it goes against the grain of their daily business practices," Ponemon continues. "Many organizations, especially in the health care industry, run autonomous decentralized operations. Medical records may be in four or five places and several of those places may not be physically or electronically secure. This is a legal violation under HIPAA.

"This is a tough issue for the CIO who must ensure that patient or em-

ployee data is handled according to the provisions of the Act," he says. "It's not just about buying hardware and software; it's also about educating a lot of people as to HIPAA's requirements. Human error is the greatest risk."

HIPAA Infrastructure

When it comes to implementing the requisite technical infrastructure, "One size does not fit all," says Jane Sarasohn-Kahn, a management consultant and health economist based in Philadelphia.

"HIPAA is very flexible regarding how covered entities implement its provisions for both physical and electronic environments," she points out. "What a huge hospital in Boston needs to do in terms of infrastructure will be vastly different from a two-person physician practice in Boise. The solution is scaled to the size of the business and the degree of risk involved—HIPAA requires a reasonable response based on acceptable levels of risk. Organizations should document their risk analysis and the measures taken to meet that risk. If there is a privacy breach, they can show they took all reasonable measures to safeguard their data."

To meet the regulation's requirements, CIOs should consider the following steps, Sarasohn-Kahn says. They include:

Conduct a major, in-house audit to identify gaps in security. "The largest breaches occur inside the organization," she says. "For example, Cisco Systems runs Security Posture Assessments (SPA) for its customers by attacking their network from both outside and inside to identify vulnerabilities that need to be addressed. The Cisco consultants can hack into 75 percent of the networks from the outside—but they can access 100 percent from the inside. Authentication, identity, password control, firewalls—all have to be carefully assessed."

Conduct a risk/benefit analysis and determine what your tactical response should be given the size, type and potential damage that may occur. "In some cases, HIPAA may have little or no direct applicability if the enterprise is not a covered entity under the law," she notes. "But, in other cases, the penalties can be severe." Larry Ponemon adds that organizations risk sub-

stantial damage to their reputation if a major security or privacy breach occurs.

Provide training and education—help create a culture that results in heightened employee awareness of security and privacy.

Document everything. "In case of any litigation," Sarasohn-Kahn advises, "documentation will support the organization's case that they have responded to the 'reasonableness' standard."

Solutions from Cisco

"Cisco is working with enterprises that are not only meeting HIPAA's requirements but are using this opportunity to transform their business," says Kathryn McTighe, Health Care Practice Director, Internet Business Solutions Group at Cisco. "They are making major changes in the way they track patient data, interface with their customers and, in the process, conduct business over the Internet. They understand that to achieve these goals, they must have a safe, secure, Internet-ready infrastructure in place."

Elements of that infrastructure provided by Cisco include products that offer connectivity and perimeter protection; security monitoring, including intrusion protection; identity and authentication systems; and management systems. Specific products include:

- Cisco PIX® Firewall, for small, medium, and large enterprise environments
- Cisco Intrusion Detection Systems

Public Perceptions and Health Care Privacy

JANE SARASOHN-KAHN reports that an IBM privacy survey conducted in 1999 revealed that 33 percent of Americans would trust banks to handle their personal information properly, but only 23 percent placed the same faith in health care providers.

Also, in a September 2000 Gallup poll, 77 percent of the respondents said the privacy of their personal health information was very important and 84 percent were concerned that this information might be made available to others without their consent.

Only 7 percent of the respondents said they were willing to store or transmit personal health information on the Internet and only 8 percent felt a website could be trusted with such information.

"Clearly, consumers want to control where their health information goes," says Sarasohn-Kahn. "Part of the enterprise's risk management analysis is to realize that we live in a litigious society; obviously it's prudent on the part of businesses to take every reasonable step to ensure the confidentiality of health care information. More trust in the health care system will help to ensure better health outcomes."

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In addition to its suite of security products, Cisco Secure Consulting and the Cisco ecosystem of partners provide expertise and tools to help ensure privacy and security in enterprise infrastructures. Also, from Cisco, the SAFE Blueprint for secure e-business provides detailed, scalable models for deploying security throughout enterprise networks. The SAFE Blueprint can help organizations of any size that are seeking to deploy network security.

Says McTighe, "HIPAA is a perfect opportunity for IT organizations to put secure network infrastructures in place and use the Internet to move their businesses to new levels of operational excellence." •

To learn more about HIPAA and how Cisco security and VPN solutions are part of a complete HIPAA deployment, visit: www.cisco.com/go/cio-hipaa. While on line, enter to win a Cisco Aironet Wireless home "starter kit."

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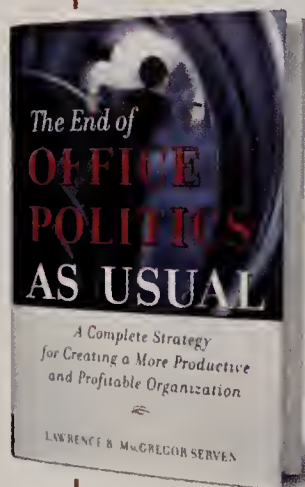
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Off the Shelf

Edited by Carol Zarrow

Political Reform

The End of Office Politics as Usual: A Complete Strategy for Creating a More Productive and Profitable Organization
By Lawrence B. MacGregor Serven
Amacom, 2002, \$24.95



In this part study, part how-to book, Serven takes a well-rounded look at a common business problem—office politics—and some uncommon solutions. Citing academic research and personal accounts from the front lines, Serven dives into the seamy underbelly most companies wish they didn't have.

What he comes up with is certainly sobering if not outright surprising. His in-depth analysis of corporate culture, spiced with five down-and-dirty case studies, reveals office politics to be not just a petty annoyance but a detriment to morale and productivity, as well as to overall company viability and market value.

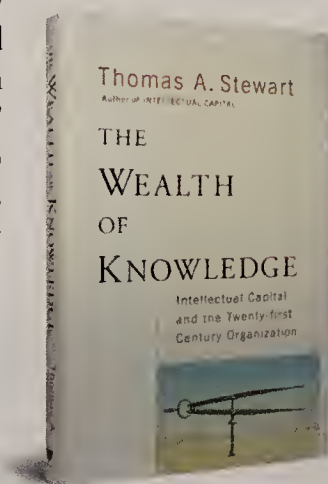
Without becoming preachy or pedantic, the author demonstrates how a few alterations to business processes and a small shift in company values can eliminate the fuel for employees' political stratagems. He proposes to align what employees perceive as best for themselves with what is best for the company. If this idea seems a little Pollyannaish, there are plenty of real-world examples from industry leaders to support his arguments. He also supplies a practical breakdown of strate-

gies: why they work, where to begin and ways to avoid common pitfalls. Survival of the fittest may be the law of the jungle, but *The End of Office Politics as Usual* makes a strong case that in business, getting along and getting ahead go hand in hand.
—Amanda S. Fox

KM in History

The Wealth of Knowledge: Intellectual Capital and the Twenty-First Century Organization
By Thomas A. Stewart
Doubleday, 2002, \$27.50

This follow-up to Stewart's 1997 *Intellectual Capital: The New Wealth of Organizations* is that rare gem: a business book that both informs and entertains. Written in a breezy, anecdotal style, *The Wealth of Knowledge* sets out to help companies devise a process for competing using knowledge and intellectual capital as foundations. The author demonstrates how companies can employ the principles of knowledge management to make more money, and he also provides a straightforward four-step approach for managing an organization's knowledge assets.



Two beefs: Stewart relies on well-worn KM examples from the likes of Cisco, Dell and General Electric. And like many people, he holds up Enron as a shining light. Yet those are minor blemishes on an otherwise worthwhile book that puts the whole knowledge economy in historical perspective. Read this book and

CIO Best-Seller List

5. Dot.con: The Greatest Story Ever Sold
by John Cassidy
HarperCollins Publishers, 2002

4. The New Imperialists: How Five Restless Kids Grew Up to Virtually Rule Your World
by Mark Leibovich
Prentice Hall Press, 2002

3. Now, Discover Your Strengths
by Marcus Buckingham and Donald O. Clifton
The Free Press, 2001

2. First, Break All the Rules
by Marcus Buckingham and Curt Coffman
Simon & Schuster, 1999

1. Good to Great: Why Some Companies Make the Leap...and Others Don't
by Jim Collins
HarperCollins Publishers, 2001

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learn lots of historical tidbits such as why the marketplaces of 12th- and 13th-century France were the medieval versions of Comdex.
—Megan Santosus

BOOK TALK

The language of business...serves to limit our abilities to fully appreciate the value of ideas.

—From *New Ideas About New Ideas: Insights on Creativity from the World's Leading Innovators*, by Shira P. White (Perseus Publishing, 2002)



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REMOTE MANAGEMENT

Covering All the Bases

By Daniel J. Horgan

SOMEWHERE IN AMERICA, just outside a major league baseball stadium, a pair of travel-worn 18-wheelers rest like ships at anchor. From deep within these vessels emanate the sound of muffled voices and the incessant hum of electricity.

A look inside one of these leviathans reveals the glow of more than 40 flashing television monitors, the amplified voices of lead announcers Jon Miller and Joe Morgan and the roar of 20 frantic producers and technicians in each truck who compose the crew of the *ESPN Sunday Night Baseball* team. Week after week, this television crew travels across the country to cover Major League Baseball's game of the week.



Inside each of the massive trucks that follow Major League Baseball teams around the country is a fully equipped production studio.

Tim Scanlan, coordinating producer for ESPN Baseball, is the captain of this team. During the off-season at ESPN headquarters in Bristol, Conn., Scanlan charts the seven-month course of the trucks

and their technicians. That includes upgrading equipment, installing new computer and production equipment, outsourcing roughly 50 percent of the filming and technical duties to freelancers in the host cities and budgeting several independent remote mobile production units to transport the seven or more cameras from city to city. Once that is done, Scanlan repeats the process for the slightly smaller but equally complex *Wednesday Night Baseball* unit. Staying ahead of the curve both in terms of schedule and program quality is Scanlan's biggest challenge in managing these remote teams. "That's my job," he says. "That's the biggest challenge that I have."

So what's new for the 2002 season? "More microphones," says Scanlan. "We want microphones everywhere. We want the viewer to feel even closer to the game." Actually, most of us here at CIO would rather just see the Red Sox win the World Series.

CONNECTIVITY

Workaholic's Wonderland

A NEW HOTEL on Florida's Atlantic coast doesn't bode well for people hoping to leave work at the office. The 1,000-room Westin Diplomat Resort & Spa in Hollywood, Fla., open since January, boasts high-tech amenities designed to impress even the most confirmed workaholic.

Each guest room has network ports for high-speed Internet access and private networking, a Web-accessible TV with wireless keyboard services, and two cordless phones—one with speaker capabilities, both with dual lines and voice mail. (Suites have all of the above as well as fax machines that can also copy and print.) The hotel itself has 1,100 data ports, videoconferencing, redundant ISP feeds, an all-fiber gigabit backbone and a five-person IT staff onsite ready to provide technical assistance. There's also a conference center next door equipped with similar high-tech amenities.

One notable feature of the hotel's infrastructure is bandwidth-on-demand. "The Internet access that we have to the building is such that we can scale up the bandwidth to whatever incoming groups need," says Steve Hicks, director of property technology. Hotels needing to ramp up Internet access typically have to install additional lines, he says, something that requires anywhere from 45 to 60 days advance notice. "We bring access in via wireless technology on the roof," Hicks says. "We can turn up the bandwidth basically overnight."

Like any resort worth its salt, the Diplomat also boasts a beachside location, four pools, 10 tennis courts, a 30-slip marina and a championship golf course. Of course, with all the high-tech capabilities, it may be hard for some guests to take advantage of the recreational facilities unless they leave their laptop at home. —Megan Santosus

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Net Gains

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Seeing the Whole Elephant

It's time companies understand what customers are really worth

BY MOHANBIR SAWHNEY

WHEN I DEAL WITH MY BANK and phone company, I am reminded of an Indian folk story about six blind men who try to learn the truth about elephants. One touches the side of the elephant and concludes that it is like a wall. Another puts his hand on its trunk and announces that it resembles a snake. A third feels the elephant's leg and proclaims that it is like a huge cow. Each man understands a part of the elephant, but nobody understands the whole elephant.

Until recently, I had five relationships with Bank One—a checking account, a home mortgage, a credit card, private banking and a small business account for my consulting work. While I saw Bank One as one company, it treated me as five different customers. And like the blind men, no part of the bank saw the whole elephant. The private banking unit classified me as a premium customer because I kept healthy account balances. But the small business unit slapped fees on me because I kept the balance in my small business account too low. I got separate statements at different times. And while my private banker was pleasant, she could not help me with online banking or service at the local branch. The bank presented many faces and talked to



me in several voices. As a result, it had no idea how much business I did with the bank as a whole and gave me no incentive to keep all my relationships there. Last week I fired Bank One and moved my accounts to Citicorp, which promises to treat me as one customer by combining my balances, sending me one statement and giving me one point of contact.

My phone company, AT&T, promised better. A few years ago, AT&T offered me a revolutionary communications package called the AT&T Personal Network. The compelling proposition: "One rate, one bill and one number for customer care." I signed up for six relationships with AT&T—long distance, wireless, calling card, credit card, cable TV and cable modem. Things seemed to go well until I had a billing problem with my wireless service. The "one number" that I called put me in a queue. Then I was transferred to another queue—for wireless customers. It would have been faster to call the

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wireless customer-care number directly. I got my billing problem resolved, resulting in a large credit balance in my wireless account that was reflected in my next bill. But a month later, a collection agency called, claiming that my long-distance account was delinquent. "But AT&T owes me money," I protested. "We don't know about that, sir. Your long-distance account is overdue," I was told curtly. So much for "one number, one bill." Now I use four different vendors—SBC Communications

The airlines figured out how to retain customers a long time ago: Pay them to stay. Hotels, casinos and car rental companies have followed suit.

for local calls, MCI for long distance, AT&T for cable TV and modem, and Verizon Wireless for wireless calls. Meanwhile, A&T has quietly dropped the Personal Network service.

Pay Customers to Stay

The airline industry figured out how to retain customers a long time ago: Pay them to stay. By creating a strong incentive for customers to do their business with one airline, frequent flier programs have helped retain customers. Hotels, casinos and car rental companies have followed suit with loyalty marketing programs that have produced impressive results. For instance, Harrah's Entertainment's Total Rewards program is credited with increasing repeat business at its casinos, resulting in \$50 million of added profit and 14 percent same-store revenue growth in 1999.

Why don't banks and telecom companies do the same and create incentives for their most valuable customers to stay with them? First of all, most of these companies don't even *know* who their most valuable customers are, because they don't know how much business a customer does with the *entire* company. Airlines have it easy. They offer one product and have one relationship with each customer. But banks and telecom companies sell many products through different business units. Because these business units don't talk to each other, the company cannot assess the true value of each customer relationship. And business units find it difficult to cross-sell products because their marketing, sales and customer-care operations aren't integrated. Even if they do cross-promote products, as

AT&T attempted, the customer experience with pricing, billing and customer service remains fractured across products, channels and business units.

Show One Face, One Voice

The problem of silos plagues most companies that sell products and services through different business units. To become customer-focused, companies need to connect their silos. To do this, companies need to create a unified repository for customer and product information and a multichannel customer interaction platform that integrates Web, call center and in-person customer service channels. The single repository allows companies to

see customer relationships across product silos, and the integrated interaction platform allows them to talk to customers across channels. Companies such as 3M are building enterprisewide data warehouses that combine customer data from different business units: It now organizes

its website and customer service organization into 10 centers, each of which covers products for specific groups of customers. For the first time, 3M knows how much business each customer does with the company as a whole. By tracking all transactions and interactions with customers in one place, companies can finally begin to see the whole elephant.

Once you see one view of your customers, you need to act on this information by giving them incentives to broaden and deepen the business they do with your company. To broaden customer relationships, you need to create interlocking *incentives*—inducements for customers to maintain multiple relationships with your company. For instance, when I use my MCI calling card to call home, I pay the same long-distance rate as if I were calling from home, but only if MCI is my long-distance carrier. This encourages me to keep my calling card and long-distance service with the same company. To deepen customer relationships, you need to reward customers for doing more business with your company. Citicorp combines my small business account balance with my individual checking account balance to determine the fees they charge me. This gives me an incentive to keep a large combined balance with the bank.

At a time when new customers are scarce and the economy is in a tailspin, it is more urgent than ever for a company to retain existing customers and do more business with them. Companies that are blind to the opportunities within their customer base will lose out to those that can see the whole elephant, and ride it to success. **CIO**

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How well do you know your customers? Let us know at netgains@cio.com. Mohanbir Sawhney is the McCormick Tribune professor of e-commerce and technology at Northwestern University's Kellogg School of Management and a fellow at DiamondCluster International. He can be reached at mohans@nwu.edu.



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Field-Tested Ideas from CIOs for CIOs

Don't Forget Architecture

To make the most of project portfolio management, be sure to include a view of your application architecture

BY ALEX CULLEN

THE COVER STORY in the Oct. 1, 2001, issue of *CIO* ("Do the Math") discussed the value of a portfolio management approach for assessing and prioritizing IT projects. At John Hancock, we've been doing many of the techniques discussed in that article for some time, but we've also improved the process by incorporating a view of our application architecture. The benefits have been numerous; I'd like to share with you how it works.

John Hancock is a large insurance company with many lines of business. IT is centralized, but there are application development areas facing each business unit. Because IT is centralized, the budget for business application projects is centrally accounted. And because there are so many business areas, each with its own IT applications and development needs, the process for identifying and committing to projects was traditionally a free-for-all.

In the annual planning and budgeting process, business units would provide lists of five, 10 or even 50 projects they wanted to undertake. The total number of projects companywide would be several hundred, and budget estimates were two to three times what was available. Further, the assumptions underlying these estimates were never clear. The result was a painful



annual planning and budgeting process and a lot of surprises during implementation of the projects that got approved. No one was happy with the existing state of affairs.

Three years ago, John Hancock established an enterprise program office to try to tame this free-for-all. EPO program managers and business analysts would work with business areas and IT development groups to collect, assess and prioritize business project proposals so that senior IT and business management could then make the funding decisions. Standard proposal templates identified proposal goals, benefits, costs and ROI; this gave management better capability to make "apples to apples" comparisons.

Unfortunately, that process didn't make it much easier to wade through the hundreds of proposed projects and develop a plan that made business and IT sense. We knew that many of the business proposals overlapped and that there were

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synergies among them that were being missed. For example, we found that we were funding separate workflow initiatives for each sales channel's case management processes, and that these initiatives used very different products and technologies; in some cases we had to outsource the projects because there was no internal expertise. On top of that, none of the systems was capable of being expanded to support other sales channels.

We uncovered many situations in which proposed projects overlapped with existing applications.

(As you might expect, we have since replaced those initiatives with a single system for all channels.)

Projects still took the IT infrastructure group by surprise, and this surprise would ripple back to the application development areas in the form of unexpected costs and project delays. The process was not conducive to well-architected solutions because the architects got involved with projects too late—after they had been approved and funded, with budgets established and delivery commitments made. It was a frustrating situation.

Enter Architecture

Eventually, we decided to reorient our architecture efforts toward providing the context and facts to guide planning decisions. But first we had to do some work. John Hancock already had a well-defined technical architecture, but it was focused on technology and tool standards, and had little connection to business applications. To supplement it, we developed several architectural deliverables.

- A model of the business that identified key processes, constituencies and business capabilities.
- An inventory and map of the current state of our large business application portfolio. We then overlaid that on our current technology infrastructure.
- A target state for the business application portfolio.

With these in hand, we engaged in the next year's annual planning process. We mapped the proposed projects to the business model to see how projects related to each other. That allowed us to identify project overlaps in terms of common or related business functions, such as data marts with a high degree of common information. When it came time to prune the list of proposals, we could suggest consolidating projects so that one single effort could support more than one business need. The overall economics of the consolidated projects was improved—more business benefit for a given unit of investment—and so was their priority for funding. IT resources could be focused on a smaller number of projects, resulting in higher quality and more reliable delivery, as well

as a reduction in subsequent application maintenance.

Similarly, we uncovered many situations in which business areas were proposing projects that overlapped with applications already existing in other areas. Because our IT groups worked in silos to some extent, they would not have been aware of the redundancies. We can now identify those cases and recommend either building on the existing applications or slating them for replacement.

Our architecture approach allows us to proactively assess the fit of proposed projects with the current technical architecture and provide early on a critical heads-up of the risk or

cost that will be involved when the fit is not good. Software upgrade plans, meanwhile, can now be compared with the proposed projects to see where they could affect a project's timing or the cost to perform the upgrade. The project's estimated cost is then adjusted to reflect this.

We also found that we could use the business model to communicate to business management how much money was being spent to provide a given set of business capabilities. For example, we now report what percentage of our total discretionary spending is applied to new business processing capability and what percentage is spent servicing existing customers.

Better-Laid Plans

What's the net result of all this? Three years ago, the annual planning process gave IT little opportunity to do more than react to business proposals. Architecture was viewed as something useful only in theory—and harmful in fact. Happily for all concerned, that is changing. Business managers are beginning to see how the architecture group can help solve their problems, so they request our input more frequently. The IT development managers are including the architects in their planning discussions with the business because we help them provide better responses to business requests. Infrastructure concerns are better represented, and infrastructure service groups are better prepared for the funded projects when they start.

The annual planning process is still arduous, and may forever be. But the results have improved. More than 80 percent of all IT projects are now delivered on time and on budget, and they meet our company's business needs. Furthermore, we all have greater confidence that the initiatives we undertake will provide the needed business value. **CIO**

Do you have ideas to share with fellow CIOs? Send them to Columns Editor Katherine Noyes at knoyes@cio.com. Alex Cullen is director of the Architecture & Design Competency Center at John Hancock Financial Services in Boston. He can be reached at acullen@jhancock.com.



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New Kid on the Block

Unlocking the mystery of what Web services are, how they work, their key standards, what kind of vendor support they receive and how they'll be used. ►►

Web services have become the most talked-about and most-hyped Internet phenomenon of the last several years. Rarely has a technology so quickly gained mind share among corporations, technologists, CIOs, vendors, IT professionals and analysts.

And, rarely has a technology been so misunderstood.

Even the most technically sophisticated IT professionals have only a vague idea of what Web services are

and how they work. They point to the general concept of running software over the Internet or having applications automatically communicate with each other. Or they believe that Web services are the same thing as Application Service Providers (ASPs). As for how Web services will actually be used, that remains hazy as well.

"To paraphrase Mark Twain: 'Everyone talks about Web services, but no one really knows what they are,'" says Larry Marion, editor-in-

chief of EnterpriseSoftwareHQ.com (formerly masg.com), an online directory of vendors for enterprise applications, application development tools and Web development tools.

But when you look beyond the marketing campaigns and closely examine what Web services are, how they work, the key standards that enable Web services and the state of vendor support, it becomes clear that Web Services represent a profound and important change in the

Web Services' Underlying Protocols: A Glossary of Terms

XML (Extensible Markup Language): A markup language that structures information so that the information can be easily extracted and used by other applications. It uses tags, as does HTML, but those tags are used to structure and define information rather than display it. Service descriptors that detail how Web services can be located and run are written in XML.

SOAP (Simple Object Access Protocol): The protocol through which Web services communications takes place. It's used to exchange structured data between network applications. SOAP is used to publish service descriptions to a service registry. In fact, all interactions among service registry, service requestor and service providers are done via SOAP.

WSDL (Web Services Description Language): The language used to create service descriptions of Web services. It can be used to describe the location of the service and how to run it, as well as what business is hosting the service, the kind of service it is, keywords associated with the service and similar information.

UDDI (Universal Description, Discovery and Integration): The directory technology used by service registries that allows the directory to be searched for a particular Web service. In essence, UDDI is a White Pages or Yellow Pages that can be used to locate Web services. There can be both private and public UDDI directories.

way applications are developed and used.

What Web Services Really Are

Once the hype is eliminated, Web services are quite basic. They're modular software components wrapped inside a specific set of Internet communications protocols. Here's what they can do:

- ▶ Underlie applications that run on the Internet
- ▶ Communicate with other programs automatically without human intervention
- ▶ Be deployed for use over the Internet, on an intranet inside a corporate firewall
- ▶ Run in a protected environment set up by business partners
- ▶ Be written using a wide variety of development tools

The development tools can perform a wide variety of tasks including:

- ▶ Automating business processes
- ▶ Integrating disparate components of an enterprise-wide system
- ▶ Delivering alerts to individuals about stock prices and the weather
- ▶ Streamlining online trading and buying and selling

Key to the promise of Web services is that in theory they can be used by anyone, anywhere, any time, using any computer system, as long as the services have been built using a specific set of standards.

While the idea of tying together disparate systems using a kind of universal glue via the Internet has long been talked about, the specific protocols that underlie Web services have only started taking shape in the last several years, as shown below.

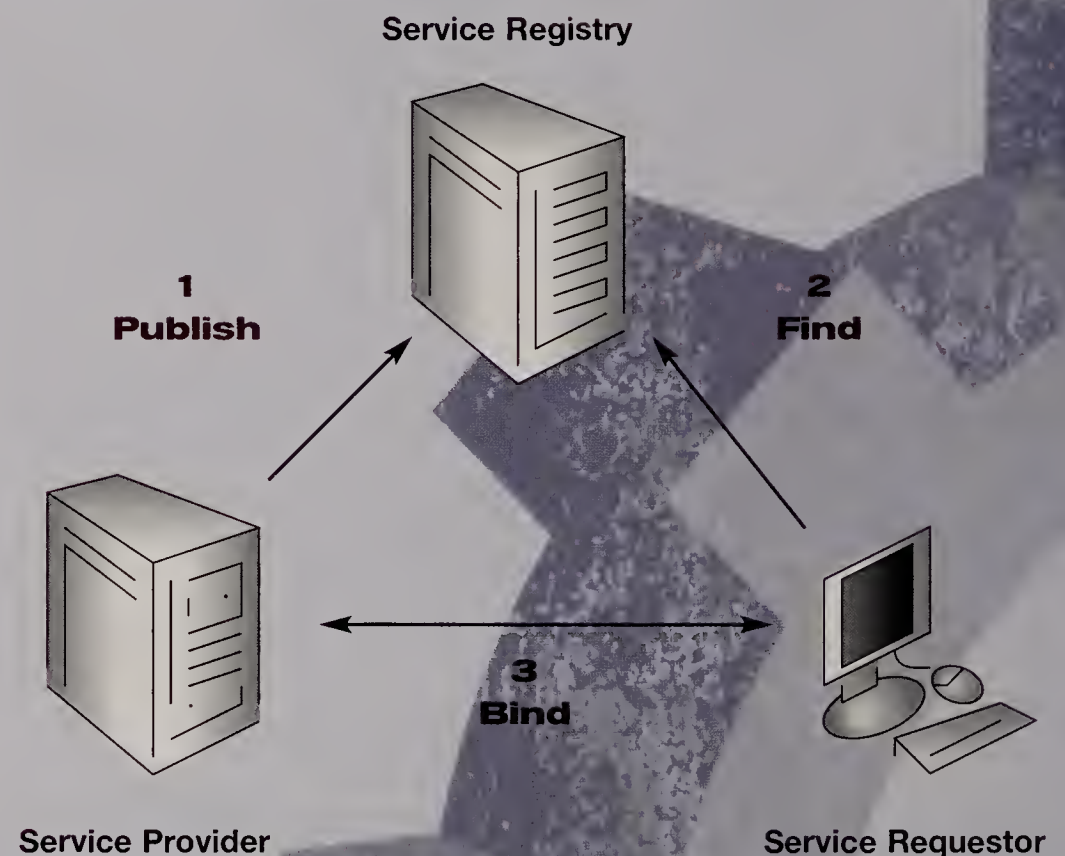
- ▶ 1998—The germ of the idea for a key communications protocol for Web services, the Simple Object Access Protocol (SOAP),

began.

- ▶ 1999—Microsoft touted an early version of the standard.
- ▶ 2000—IBM signed on with Microsoft to version 1.1 of SOAP; the standard was submitted to the World Wide Web Consortium (W3C), the Internet's primary standards-setting body.

so that data can be easily extracted and used by other applications. An XML document "describes" a Web service and includes information detailing exactly how that Web service can be run. When someone runs a Web service, the XML document is found first. Then, the document details how to run the serv-

How Web Services Work



Since then, many other companies have agreed to support the standard. Other Web services protocols have sprung up as well. Now, there is a groundswell of support for Web services and their underlying protocols.

Understanding the Key Protocols

There are four key protocols that make Web services possible:

1. Extensible Markup Language (XML)—structures information

ice and based on that, the service is run.

2. Web Services Description Language (WSDL)—used to create the XML documents that describe a Web service.
3. Universal Description, Discovery and Integration (UDDI)—allows for the creation of public, searchable directories of Web services. Many Web services will ultimately be located in public directories so that anyone can search for a

particular service and then run it, based on the XML document describing the service.

(www.uddi.org/find.html provides a look at an early UDDI implementation of these directories)

4. Simple Object Access Protocol (SOAP)—underlies everything else. It's a communications pro-

cedure like webMethods of Fairfax, Va., can turn applications and business processes into Web services. Security firms like RSA Security of Bedford, Mass., offer tools providing security for Web services. Companies such as Bowstreet of Portsmouth, N.H., have created platforms to help build and manage Web services-based applications. Countless other

ware tools from IBM and then deploying that service on an HP application server. There are some messy fights going on involving Microsoft's .NET implementation of Web services versus Java-based implementations. The issue of cultural change remains: Will companies be willing to expose some of their business processes via Web services, and, will competing vendors be willing to cooperate with one another?

Pete Lindstrom, director of security strategies at the Framingham, Mass.-based Hurwitz Group, says these kinds of short-term problems are inevitable, given the nature of what Web services are trying to accomplish. "In a lot of ways, Web services are all about the interoperability problems we have today between systems," he points out. Thus, it's only natural that at first there would be these kinds of issues.

Most observers believe these issues are nothing more than the normal growing pains all new technologies face. Given how new and complex the standards are, they say we have come further along in a shorter amount of time than one would expect.

"Those issues will end up being resolved," predicts EnterpriseSoftwareHQ.com's Marion, "There's too much at stake for everyone involved. Once everyone realizes the benefits offered by Web services, even cultures inside organizations will change to accommodate building them."

John Worrall, vice president of product marketing for RSA Security, sums up many people's thoughts about the future of Web services: "I believe we have not yet tapped into the full power of what the Internet can do for us. Web services will show us the way." ◀

Web services are software modules wrapped inside a specific set of Internet communications protocols and can be run over the Internet. In order for the Web service to be run, it needs to be described in detail so that other programs can understand what it is and know how to connect to it. It is described using the Extensible Markup Language (XML). This XML depiction is called a service description or descriptor and includes all the details necessary for the Web service to be accessed.

For a computer or program to use a Web service, it needs to be able to find this service description and then bind to it. To accomplish this, there are three key roles in the Web services architecture: Service provider: The server that hosts the Web service; Service registry: A searchable database that hosts service descriptions; and Service requestor: The person, computer or service looking to run a Web service.

Together, they perform three operations on a Web service:

1. Publish—The service provider hosting the Web service module creates an XML-based service description for the Web service. It uses the publish operation to make information about the service available so that it can be found and used.
2. Find—The service registry, using the UDDI protocol, makes service descriptions available so that Web services can be found and run. A computer or program can search for, and understand, what the Web service is, where it's located and how to link to it.
3. Bind and run the service—After the service requestor finds the Web service's description, it has the information it needs to run the Web service.

protocol that allows structured data such as XML to be exchanged between network applications.

Where Web Services Are Today

These protocols and Web services have gained widespread support among vendors. Industry leaders such as IBM, Microsoft, Sun, HP and Oracle all support the standards and have released toolkits, hardware and software for developing and deploying Web services. Integration

firms support Web services and their standards as well.

All is not necessarily rosy. One problem is that the underlying standards are still evolving, so different vendors may provide somewhat different implementations. It's not at all clear how easy it'll be to create a Web service using one vendor's development tools and then to deploy that service on a competing vendor's hardware, for example, developing a Web service using soft-

Compelling Benefits

Web services will drive productivity gains in all industries, so it's time for business executives to stand up and take notice. ►►

There are some pretty persuasive reasons why CIOs and other IT executives should care about Web services. "Web services provide an easy, ubiquitous way to make our information available to our clients," says Tim Hilgenberg, chief technology strategist at Hewitt Associates LLP, in Lincolnshire, Ill. They let the company expose information and functionality in a secure

way, and "we don't have to come up with our own proprietary approach to do it," he adds. Such a proprietary approach would be costly to develop and maintain and requires customization for each client.

Hewitt manages benefits programs for large Fortune 500 companies, and he needs to make the data and capabilities in their systems available to their customers. To do so, the pro-

gram uses traditional voice telephone channels, call centers, Web portals and now, Web services. More than just another channel, Web services allow Hewitt to "enrich the participant experience by providing advice or adding more services from outside vendors," Hilgenberg continues.

Although still in their infancy, Web services are rapidly attracting the attention of the business world with

Web Services Automation

Web services solve many problems for enterprise IT, but as they are currently being planned and delivered, one problem they don't avoid is vendor platform lock-in. "When it comes to the Web services revolution, the big platform vendors—Microsoft, IBM, Sun and newcomer BEA—are talking a good game. But behind the scenes each one is strategizing on how it can dominate Web services to suit its own needs to achieve global hegemony in [the] Web services world," declares Frank Moss, chairman of Bowstreet, a Web services tool vendor in Portsmouth, N.H.

Not everything the vendors are doing is bad, Moss continues. At the core platform level they are providing necessary Web services development tools such as Microsoft's VisualStudio.NET and application servers such as IBM's WebSphere. The vendors are helping to develop and implement Web services standards, such as XML, WSDL, SOAP, UDDI.

Rather, Moss is concerned about what happens later when Web services are then assembled into actual applications. Here, the major vendors use their proprietary portal servers

and application frameworks "to pour the wet cement of hard-wired applications all over Web services and bolt the resulting applications securely to their own platforms," he maintains.

The result is vendor lock-in. Once IT creates applications using what it believes are open Web services, those applications can only run on one vendor's platform.

Companies, Moss warns, may "experience unbounded cost and complexity in the process of creating these complex Web applications and keeping them up to date."

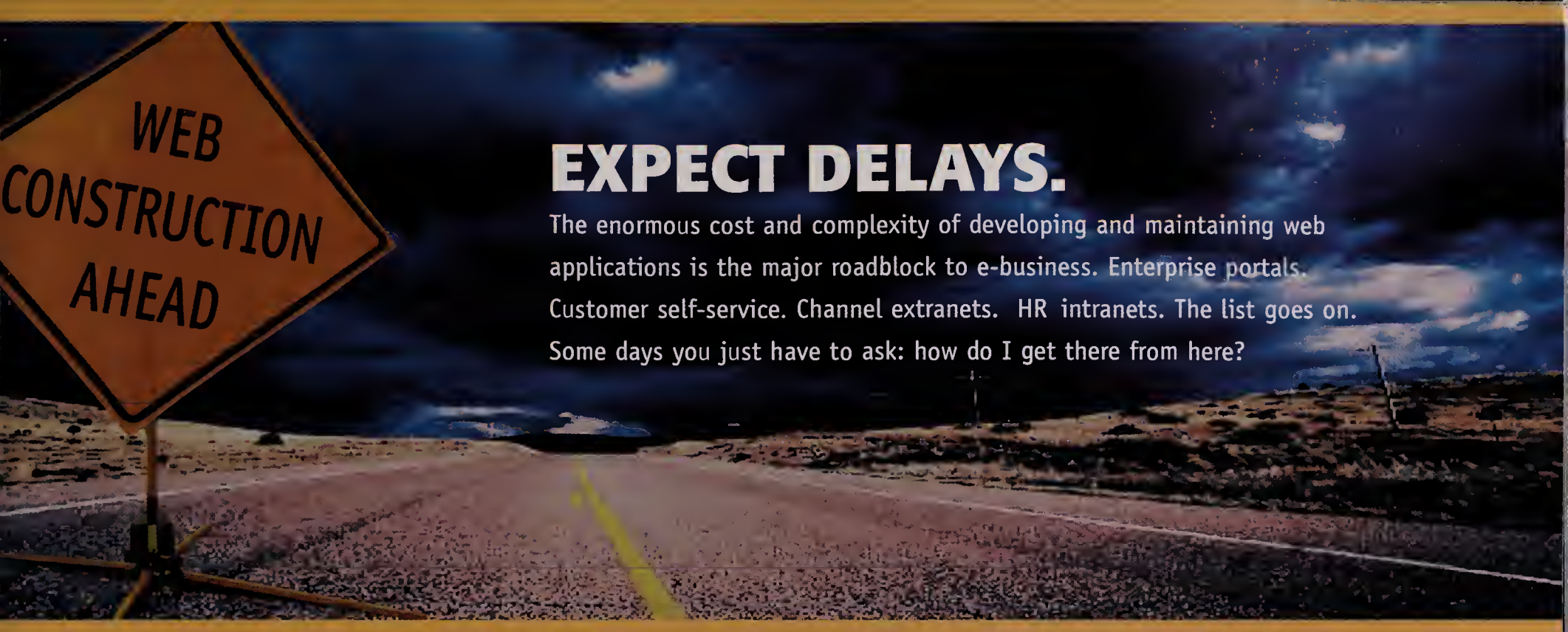
The solution? Web services automation based on Bowstreet's framework of automated services builders, used to assemble Web services into applications. The automated service builders not only avoid platform lock-in, but result in Web services that can be

modified directly by business managers. The Bowstreet approach, begun four years ago as an effort to automate much of today's manual software development, is now being used in dozens of companies including Cisco Systems and MetLife.

For more information about Bowstreet visit www.bowstreet.com.



**Frank Moss, chairman
Bowstreet Inc.**



WEB
CONSTRUCTION
AHEAD

EXPECT DELAYS.

The enormous cost and complexity of developing and maintaining web applications is the major roadblock to e-business. Enterprise portals. Customer self-service. Channel extranets. HR intranets. The list goes on. Some days you just have to ask: how do I get there from here?

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UNLEASHING THE POWER OF WEB SERVICES.

their promise of easy information exchange, reduced programming costs, improved connectivity and collaboration with partners and customers, and more. In a survey of businesses by the research firm TechMetrix, 48 percent of managers said they were either in the testing and prototype stage or had already started Web services projects while 32 percent expressed interest in Web services. (See chart below.) A survey of almost 500 IT managers polled in 2001 by The Business Integrator Journal found 65 percent of respondents reporting that Web services are strategically important to IT.

Web services are poised for rapid growth. Gartner Group estimates a \$21 billion market worldwide by 2005 for software that uses Web services standards. ZapThink, a research firm focusing on XML, projects the Web services market to grow from \$380 million in 2001 to \$15.5 billion in 2005.

Until recently, Web services primarily attracted the interest of the software industry. Their arguments raged around the details of standards, and, leading vendors jockeyed for the most advantageous position in the emerging market. However, Forrester Research, in a recent announcement declared: "It's time for business executives across all industries to pay attention. Web services will drive productivity gains by making it easier for firms to collaborate—internally and with business partners."

Still, Forrester isn't advising enterprises to jump onto the Web services bandwagon whole hog. Rather, "in the past year, new specifications have emerged to standardize basic Web services that open up broad growth and cost-cutting opportunities," notes Frank Gillett, senior analyst at Forrester and author of the new report titled *Start Using Web Services Now*.

"Companies should exploit these standards now to build simple links

between internal apps and their business partners," Gillett says. But he continues, "Use them today in situations where it is okay if they fail." A human resources (HR) application using Web services, for example, probably can fail without jeopardizing the company whereas a customer relationship management (CRM) or enterprise resource planning (ERP) application cannot.

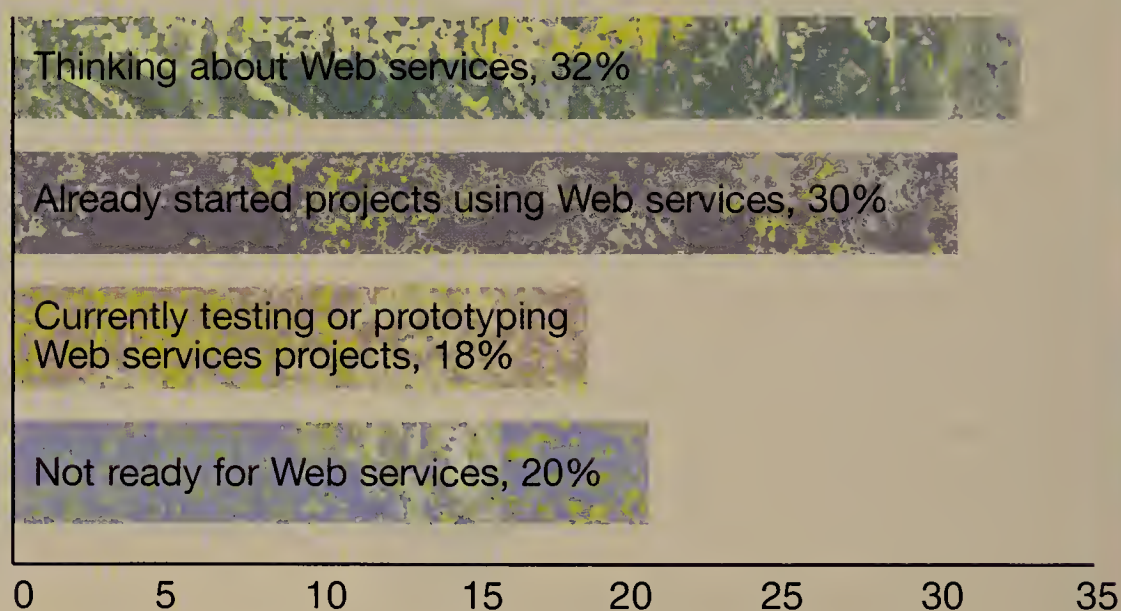
Although the technology indeed needs maturing, the potential benefits of Web services are becoming clear: application integration, smooth B2B commerce, extended business process automation, application development by assembly and more. These benefits aren't anything new; businesses and IT have been pursuing them for years. By combining standards for the application interface, communications and data with object/component software in a platform-independent way, Web services represent a major step toward achieving these long-sought goals.

Ease of enterprise application inte-

gration (EAI) seems like a quick win for Web services. Safely behind the corporate firewall, applications can be exposed and loosely coupled via the Web services interface. And it works, but only at the data level. "Currently, Web services let you integrate data very easily, but you can't define and integrate a business process," says Gunjan Samtani, division vice president of UBS Paine Webber, in N.Y.

The problem is the lack of session and transaction management in the Web services standards, Samtani points out. Without these capabilities, a business can't ensure that the process or transaction was successfully completed. "Today these are capabilities that must be supported in the application servers or EAI brokers," he adds. Until such capabilities as session management are built into Web services themselves, it will be hard to use them beyond the simple exchange of data between applications, such as a request for a price quote.

Most Companies Are Interested in Web Services



The majority of almost 500 companies polled in 2001 by TechMetrix indicated interest in Web services.

Source: TechMetrix Research

webMethods' Web Services Integration Platform

How does a CIO extract maximum value from the organization's investment in information systems?

In the past, the automatic answer was to invest even more money in traditional applications development. "But companies have no patience for another big development expense," reports Kim Trudel, webMethods vice president of enterprise Web services.

A better solution lies in Web services. "Web services are the next generation of enterprise application integration," Trudel says. In recent months, the necessary standards to turn Web services into a technical reality have matured. Enterprises can now take advantage of Web services to integrate existing applications. According to Trudel, this enables organizations to extract additional value from their current investments in systems and technology.

Yet some key aspects of Web services remain unresolved. For example, the standards don't yet address security, workflow or performance management. As a result, CIOs may be hesitant to try Web services for serious enterprise work.

WebMethods, a leading provider of integration software and a strong proponent of open standards, has taken an early lead in supporting Web services. From the start, it recognized the shortcomings in standards. Its solution: the webMethods integration platform, which provides a foundation for the deployment of enterprise Web services that integrate fully with end-to-end business processes across the enterprise. Robust management capabilities are included that leverage and extend the value of existing applications.

The webMethods integration platform

helps organizations with Web services in two ways. First, it provides for the easy creation of Web services from legacy systems. Second, it provides effective management of Web services, something currently lacking in the core Web services standards.

What the platform does

The webMethods platform is well suited for exposing back-end enterprise systems as Web services. It does this by supporting a wide range of application integration adapters that make it simple to integrate with legacy sys-



Kim Trudel
VP, enterprise Web services
webMethods

"Web services are about integration, about getting more from your existing systems, not about new development."

tems. With three clicks, for example, developers can create an employee information lookup service for an HR application. Other back-end systems that can be exposed as Web services by the webMethods integration platform include the following:

- Commercial packaged applications such as SAP R/3, Siebel, i2, JD Edwards and Oracle
- Databases such as Oracle, SQL Server, Informix, Sybase and DB2, as well as any ODBC- or JDBC-compliant data store
- Legacy CICS and IMS/VM-based applications
- Custom applications written in C/C++, COM, Java and Enterprise Java Beans

Once deployed, the webMethods platform manages and monitors the Web services and Web service connectors using webMethods' GUI-based tools provided with the integration platform. This makes possible crucial enterprise management capabilities such as operational statistics, service execution logs, enabling/disabling of services, access control and more. Through the Open Management Interface (OMI), jointly authored by webMethods and HP and supported by Computer Associates, IBM/Tivoli and BMC, the webMethods integration platform makes

vital Web services management and monitoring information available to the enterprise's existing system management tools.

"What other Web services management platform has the support of the four leading enterprise management systems vendors?" Trudel asks.

Integration, not development

The biggest mistake CIOs make is to view Web services as yet another new systems development initiative. These CIOs miss the point of Web services. "Web services are about integration, about getting more from your existing systems, not about new development," Trudel says.

Another mistake they make is to view Web services as a solution to point problems for which small, niche tools are sufficient. "Web services shouldn't stand alone. Your Web services are really part of your overall business process," Trudel continues. As a result, organizations need enterprise-class tools to support and manage their Web services as an integral part of their business systems environment.

For more information about webMethods, visit
www.webmethods.com

webMethods®

The Business Integration Company

Triumph over Web Services Challenges

Just as the 1990s movement from mainframe application architecture to client/server systems was considered an epochal evolution of systems design, the shift to the Web services concept promises to be equally tumultuous. However, the lessons learned from those prior "paradigm shifts" don't have to be relearned the hard way all over again.

A decade ago many thought the migration to client/server would result in lower costs. Not quite. "While the purchase price of client/server MIPS (millions of instructions per second) was much lower than mainframe MIPS, the cost of managing a multitude of boxes overshadowed the hardware savings," says Larry Marion, editor of EnterpriseSoftwareHQ.com (formerly known as masg.com).

Plus, the complexity of designing and maintaining applications in a three-tiered architecture was much more daunting in reality than the theories opined by experts. Systems architects were bedeviled by partitioning applications and tasks among tiers of processors. Troubleshooting crashes became a multinational nightmare.

Further, the expected benefit of moving to a non-proprietary, client/server operating system also turned out to be a two-edged sword. "The many flavors of UNIX and the immaturity of the operating system confounded early implementations," Marion says. The proliferation of almost-compatible applications and utilities led to many organizations making the wrong product decision, wasting time and money.

Now Web services threaten to introduce the same kind of challenges. The many advantages of Web services—worldwide access to the most recent application, pay only for what you use, seamless collaboration and other benefits—are realistic, but a tremendous amount of IT infrastructure and thinking needs to be revised.

Finding the right tools and applications to help an existing organization take advantage of Web services needn't be a hit-or-

miss chore for systems designers. The EnterpriseSoftwareHQ.com Web site provides one-stop

EnterpriseSoftwareHQ

shopping for IT managers, systems architects, programmers and other technology professionals. The site's database contains more than 15,000 functions provided by more than 1,300 products.

EnterprisesoftwareHQ.com also offers product conformance rankings to the specifications inserted by each site visitor. Once a short list has been generated and reviewed, the site will automatically distribute requests for quotation from the appropriate vendors. "We provide an unbiased source of detailed feature, product and vendor information that vastly simplifies the software selection process," Marion explains. "In addition, we offer commentary on software product trends and other useful information."

For more information about the EnterpriseSoftwareHQ.com Web site, or to sign up for a free newsletter providing monthly analysis of product trends, go to www.EnterpriseSoftwareHQ.com.

Beyond EAI, the platform independence and loosely coupled nature of Web services make them ideal for B2B commerce and system-to-system integration with business partners via the Internet, especially in situations where the main objective is exchanging data. Forrester Research notes: "As Web services technology lets firms interconnect software systems faster and cheaper, it will also streamline business collaboration." This collaboration can be as simple as passing shipping information, or, it can be as complex as credit approval or joint product development.

For example, Bekins, a transportation company based in Hillside, Ill., is turning to Web services to make its

order and inventory management systems accessible to the various partners and shippers it works with to track shipments and improve the efficiency and productivity. Ultimately, the company sees Web services as a way to attract new business by extending its applications to a much larger audience.

Other widely heralded benefits of Web services, such as easy Lego-like assembly of new applications by linking existing internal and third-party Web services, will be longer in coming, if they arrive at all. "Applications assembled from Web services is another layer," notes Frank Moss, chairman of Bowstreet, in Portsmouth, N.H.

Today, however, there is no market

for third-party Web services and few tools for testing and managing the resulting applications. "You want to expose business processes as Web services and then manage them like any other process," notes Kim Trudel, vice president of webMethods Inc., in Fairfax, Va. When third-party services are involved, however, management gets very complicated. Snapping components together Lego-like to create complex applications has proven to be far from child's play.

Still, the benefits of Web services—faster, easier, cheaper—are a compelling siren's song business has heard before. The obstacles remain formidable, but this time the object of desire seems tantalizingly within reach. ◀◀

An Integration Delight

Web services simplify the process of letting disparate systems exchange information and initiate processing—but the technology still has a ways to go. ►►

With just over \$30 million in revenue, IMP, a San Jose, Calif.-based designer and manufacturer of power management and communications circuits is a small company competing in a cutthroat, demanding market. As its business became complicated by an increasing mix of third-party components along with its traditional foundry fabrication, IMP became hindered by the inability of its manufacturing execution and financial systems to communicate. Lacking the resources to launch a major systems overhaul, it turned to Web services.

"IMP needed to be able to put in orders and track them by its manufacturing execution system. Then it needed to correlate all the sales, production and financial information. But the whole process had broken down," says Ravi Panja, CTO of InSync Information Systems, a systems integrator in Fremont, Calif. To fix it, IMP needed to connect its major systems.

Enterprise application integration (EAI) tools like TIBCO or IBM's MQ Series could do the job, "but they were way too expensive and they would be overkill anyway," says Panja. Instead, a two-person InSync team turned to Web services, and working for two months using tools from Cape Clear, created a small set

of Web services based on the SOAP, WSDL and XML standards, and a private registry. This let IMP's manufacturing system exchange information with its financial system.

Web services are loosely coupled pieces of software that reside on an internal or external network and perform specific functions. "Technically, they are similar to software objects and components but are defined in more easily understood business terms, which should make them easier to find and use," explains Larry Marion, editor-in-chief of EnterpriseSoftwareHQ.com, (formerly known as masg.com). Intended for system-to-system communication and integration, Web services enable disparate systems to exchange information and initiate processing without the considerable expense of coding and maintaining full point-to-point integration. Instead, systems call for data or processing through a well-defined standard service interface. Through the private or public registry, a system knows what services are available and how to use them.

Until then, EAI remains a big concern, and the immediate obstacle to the use of Web services for complicated EAI is the immaturity of the technology. Key pieces, such as security, transaction management and business process control, are not yet part of the standards.

Vendors like webMethods have stepped in to provide what Web services standards currently lack. WebMethods adds such capabilities as workflow, business process modeling, document transformation, security and performance management—capabilities necessary for industrial strength EAI.

Web services are being eyed by CIOs to solve a variety of sticky integration problems. "With a Web service, we can give agents real-time access to our rating engine," says Dave Brinker, CIO of CSE Insurance Group in San Francisco. Real-time access will speed the rating process, improve the quality of the incoming insurance applications and save considerable back office work, he says. Until now, the big stumbling block has been CSE's

The Top Five EAI Vendors by Market Share in 2001

1. IBM	15.0%
2. TIBCO	12.6%
3. webMethods	10.5%
4. SeeBeyond	8.7%
5. Vitria	6.1%

Other: 47.1%. Market Shares are based on software license revenues for integration broker suites.

Source: Wintergreen Research

AS/400 system, a proprietary mini-computer that runs the ratings engine. The company hired a consultant who spent several months trying to open it up for integration. With the emergence of Web services, CSE expects to finally finish the job.

Web services may greatly simplify the process of application integration, but application integration still requires careful preparation. For instance, Robertson Stephens, the San Francisco-based financial services firm, turned to Web services to ease access to company data. But before the company could capitalize on Web services, it had to build a system architecture that lent itself to the technology.

"We put in a WebLogic application server and wrote our business functions as enterprise Java beans to separate application functionality from presentation," explains Dirck Hecking, vice president and technology architect.

Only after it had its new system architecture in place could Robertson Stephens take advantage of Web services. For example, the company is making its reference data into a Web service. This data, which resides in the Robertson Stephens data warehouse, is used by almost every application in the company. To make this information accessible, the company has relied on shared file systems and replicated databases.

"But with Web services, we won't have to copy this data and scatter it all over the network," says Hecking. Instead, the company will create a Web services interface to the data warehouse, enabling applications to access data directly as a service.

The biggest obstacle to leveraging Web services for EAI is the design of the legacy applications. "How hard this is depends on how well architected the systems are," says Tim Hilgenberg, chief technical strategist at Hewitt Associates, LLP, in Lincolnshire, Ill., a benefits administration outsourcing company, which set up its core legacy CICS applications as Web services. Now the company's clients can access a variety of information and functionality directly from Hewitt's CICS applications.

The ideal path to Web services, as Hewitt and Robertson Stephens discovered, is through a three-tier, object-oriented architecture. If companies haven't yet adopted such component-based or service-oriented systems architecture, they'll have to go through extra steps before they can cash in on Web services. Specifically, they'll have to isolate the functions they want to deliver as Web services. This entails wrapping the code and giving it a Web services interface.

A number of vendors have recently introduced tools that promise to ease legacy application integration, and packaged application and middleware vendors are rapidly equipping their software with the XML and SOAP capabilities necessary to play the Web services game.

Although Web services don't necessarily provide all EAI solutions, they have already proven their worth in straightforward, tactical integration situations and when specific, well-defined application components are involved. ◀

Web Services in the Financial Industry

Straight Through Processing (STP), the controlled capture and processing of a financial order from initiation to trade finality, which relies solely on human intervention to add value, is fueling the financial services industry's recent interest in Web services. Postponed following the Sept. 11 attacks, the deadline for STP is still three years away. But already STP is making financial IT managers nervous.

A survey of 113 financial services firms conducted at a recent industry conference found 41 percent are still evaluating how to implement STP and trade-plus-one day (T+1) settlement, while only 1 percent are currently testing their STP systems.

Given the potential industry payback of STP—\$18 billion in savings over five years (for the industry), according to the Global Straight Through Processing Association—it is no surprise financial industry IT managers are eyeing Web services in light of increased regulatory and market pressure.

Web services technology, says Darren Oberst, vice president of financial services at webMethods, will help financial services firms deliver STP and capture the accompanying efficiencies. It'll also enable them to leapfrog into the next generation of STP, where customers can access a firm's services automatically. For example, "Web services will let a large bank embed a brokerage firm's trading system into its own banking applications," he explains.

Although the large number of legacy systems still running hinders the financial services industry as it moves toward Web services and STP, those problems are solved by the webMethods platform. "WebMethods integrates with legacy systems through an adapter or component and converts the function into XML, which can then be exposed as a Web service," Oberst says. And with security, transaction integrity and management features built-in, financial services firms can get up and running with enterprise-class Web services fast.

Reducing the Risks

Security is a key concern for organizations considering Web services, but emerging standards mitigate the problems. ►►

Web services have the potential to drastically transform the way companies do business with one another and consumers over the Internet. But with benefits comes risk, and the technology carries with it many potentially serious security vulnerabilities as well. Unless these vulnerabilities are addressed, many believe Web services will never gain widespread acceptance and their benefits will never come to pass.

According to security experts, vendors in the field and Web services developers, three different kinds of security threats should be addressed by organizations considering the technology:

- Exposed corporate information and systems. Web services can leave open security holes that can allow hackers to gain access to private corporate information and internal corporate systems.
- Exposed consumer information. As consumers use Web services, more credit card numbers and other personal information will be sent over the Internet and can be spied upon.
- Spoofed transactions. Hackers could create a phony Web services-based transaction to commit cyber theft. For example, in a Web services-based trading system, a hacker could spoof transactions and then be paid for

selling stocks he never actually owned.

Web services are so new that standards and established ways to address these threats have not yet been developed. Fighting them will require using a combination of existing technologies, such as Secure Socket Layer (SSL), plus using an emerging set of Web services-specific standards such as SAML (Security Assertion Markup Language) and XML Signature.

How Vulnerable Are Web Services?

Many people believe that if anything, security threats have been dangerously underemphasized.

“Ninety-five percent of existing

Important Web Services Security Standards

SAML (Security Assertion Markup Language): An XML-based standard for authentication and authorization. It'll provide a “single sign-on” so that people can be authenticated once and then be able to access multiple Web services.

XML Signature: A specification that defines how digital signatures can be represented in XML. Entire documents or sections of documents can be digitally signed with it.

XML Encryption: A companion to XML Signature. It handles encryption and decryption of entire XML documents as well as individual sections of XML documents.

XKMS (XML Key Management Specification): A specification that defines how to register and distribute public keys that are used in XML-based encryption. It's designed to solve the problem of how keys can be managed in instances in which parties in a transaction don't know one another. It's made up of two specifications: the XML Key Information Service Specification (X-KISS) and the XML Key Registration Service Specification (X-KRSS).

XACML (Extensible Access Control Markup Language): This allows security policies to be created that determine who has what kind of access to XML documents over a network. For example, it can define who has access rights for a particular XML document or section of an XML document.

Web services are vulnerable and done poorly from a security perspective," maintains Richard Stiennon, researcher director of network security for Gartner Group, based in Stamford, Conn. "Business transactions have traditionally been based on an historical web of trust enforced by a paper trail. But with Web services, there is far more anonymity, and that will be exploited."

Stiennon contends that targeted break-ins to corporate systems by

hackers "cracking identity credentials" are the most likely threat posed by Web services. To counter the threat, "use very strong authentication and identity management" based on XML technology, such as SAML, an XML authentication and authorization standard, he recommends.

John Worrall, vice president of product marketing for security firm RSA Security of Bedford, Mass., concurs with Stiennon's view that 95 percent of Web services applications

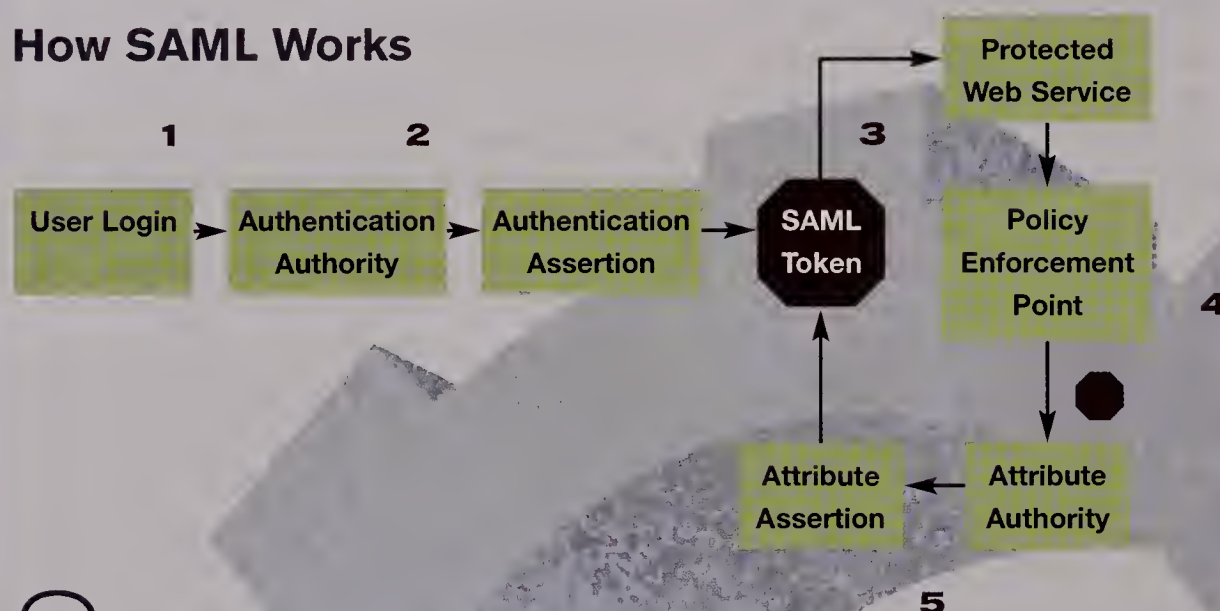
aren't secure enough.

"People think that they have a firewall and so they have the security they need. But they're kidding themselves," Worrall says. "Security needs to be part of the planning process. They need to consider things such as what level of proof of identity is needed. Is a password enough? Do I need a smartcard? What level of privacy is required?"

Important to the success of Web services, Worrall adds, is that security technologies build an environment of trust in which people can do business. For that to happen, "Multiple standards will evolve," and SAML is only one of them, he says. RSA Security provides a wide range of encryption and security solutions that can be used for Web services; some such products are:

- ▶ RSA SecureID authentication solution, smartcard software and management solutions
- ▶ RSA Keon PKI (public key encryption) products
- ▶ RSA ClearTrust Web access management

How SAML Works



SAML (Security Assertion Markup Language) will likely become one of the most common ways to provide security and authentication for Web services. Here is how it works.

- 1.** A person wanting to use a Web service protected by SAML logs into an authentication authority. Only if the proper credentials are presented—such as a password—is the person accepted.
- 2.** The authentication authority checks the credentials. If the credentials are correct, it creates an authentication assertion that verifies the person is who he says he is. It puts that assertion into a SAML token, which also contains a description of the kind of information and resources that the person is allowed to access.
- 3.** When a user tries to access a protected Web service, the SAML token is presented.
- 4.** Before the person can access the Web service, a Policy Enforcement Point intercepts the request and sends a token to an attribute authority.
- 5.** The attribute authority examines the token and determines whether the user should be allowed to access the Web service, based on the authority's rules and on information found in the token. If it allows access, it creates an attribute assertion and attaches it to the SAML token. The token, with the attribute assertion attached, is presented again to the protected Web service and the person is allowed to access the service.

Think End-to-End Security

For Web services, it's not enough to secure data and information that is being sent out across the Internet, says Jeremy Epstein, director of product security for webMethods, a Fairfax, Va. provider of integration software that can turn applications and business processes into Web services. A more complete end-to-end solution needs to be built that takes into account securing data even after it is stored on a network or server.

As a parallel, Epstein cites the example of a Web site that uses SSL encryption and digital certificates to ensure that credit card information can't be read when it is sent over the Internet—yet still fails to protect its customer database. Essentially, the

RSA: A Legacy of Keeping Businesses Secure

If a business were to choose a tools company for securing Web services, it likely would want one that isn't new to the security market and one that offers a full suite of products.

As a bonus, the company would also have a research arm. This would enable it to solve tomorrow's security problems (such as those associated with wireless technologies), not just the problems facing businesses today.

Think a company like that doesn't exist? It does. RSA Security, based in Bedford, Mass., has a long history in the security business, funds the RSA Laboratories research arm and sponsors the highly regarded and well-attended RSA conference. The company was founded by three MIT scientists who invented the RSA public key encryption security algorithm in 1977, now a world standard.

Today, RSA is increasing its focus on providing security for Web services, according to Vice President of Product Marketing John Worrall. The company offers several complementary product lines that secure Web services, along with providing security for other applications:

- RSA SecurID systems provides authentication in a variety of ways, from tokens to smart cards.
- RSA ClearTrust controls and manages user access privileges to Web-based resources, including Web services. It supports the SAML (Security Assertion Markup Language) standard now emerging as one of the most important Web services security standards.
- RSA BSAFE allows developers to implement a wide variety of security standards, such as SSL. This provides vital support of Web services-specific security standards, such as XML signing and encryption tools for the SOAP protocol, which is the underlying communications standard for Web services.
- RSA Keon manages digital certificates and creates an environment for authenticated, private and legally binding electronic communications and transactions. It will support the XML Key Management Specification (XKMS), an emerging Web services encryption standard.



John Worrall,
VP, product marketing,
RSA Security Inc.

For more information about RSA Security visit www.rsasecurity.com.

site is allowing that information to be stolen by someone cracking into the system.

"Web services security means a lot more than SSL and digital certificates," Epstein says. "It means doing careful design from the very beginning, using a safe programming language like Java, using 'red-team' penetration testing to probe for vulnerabilities" and using technologies like SSL, SAML and others when appropriate.

Epstein notes that many XML-related security standards are in varying stages of development. For example, XML Signature has become an "unofficial standard" for creating digital signatures for Web services, while the XML Key Management Specification (XKMS), which handle registering and distributing public keys used in encryption of Web services, is still being standardized.

These and other XML encryption tools will allow for end-to-end encryption of XML documents. With end-to-end encryption, some parts of an XML document can be encrypted but not others, and one can specify who has access to what parts of the document.

Life in the Trenches

Pioneering companies that have built Web services have struggled with security issues because there is no complete suite of accepted security standards and tools. One example is i-Deal, a N.Y.-based company with a Web service for the securities industry. It allows the equity and taxable debt capital-raising process to be conducted over the Internet.

Basiru Samba, managing director and chief software architect, says when i-Deal started building its Web service there were no accepted stan-

dards for authentication and securing of Web services transactions. So the company came up with its own security measures, using SSL, PKI and a token-based system using SOAP.

"At the time we were building it [the Web services platform], standards like XML Signature were still in their infancy," he says.

If a business is planning on building a Web service, analysts, vendors and pioneers all agree that security must be built directly into the architecture of the service. Emerging standards such as XML Signature, XKMS and SAML will be required to provide a complete end-to-end security solution. Many maintain that without that complete solution, Web services will never catch on. As Samba says, "When it comes to Web services, security is the showstopper." ◀◀



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PENNY-PINCHING All-Stars

For CIOs at companies with historically small profit margins, a recession means little change. Read how they treat every IT dollar like gold.

BY SIMONE KAPLAN

You used to pity Lloyd Taylor. Like other CIOs who work for companies in low-margin industries, he was the guy with the shoe-string budget who had to watch every penny, every day.

Well, guess what? Taylor, the CIO at Cargill, a global manufacturer and distributor of agricultural and food products, is now a role model in these tighter budget times. Cargill may be a \$49 billion company in terms of revenues, but it cleared a profit margin of *seven-tenths of 1 percent*, less than one penny on the dollar, in 2000. So while you've recently recalibrated your expectations about IT spending to fit a recession, Taylor has had to master the ability to do more with less—regardless of the economic cycle.

Reader ROI

- Learn how CIOs at companies with thin profit margins think about IT spending
- Get a rundown of their money-saving tactics

"There's only so much money to go around, and you have to make sure every dollar is well spent," Taylor says.

Taylor uses his words like he uses his company's money: He prefers not to talk at length about frugal spending tactics. But keep his statement—and the remarks by other CIOs you will find in this story—in your pocket. They're coins that carry lessons about value.

As you read the tips culled from

conversations with eight CIOs from various industries, it's useful to remember that one industry's typical profit is different from another. In bread-and-butter industries, such as agriculture, trucking, contract manufacturing and construction, where stiff market competition and price pressures mean slim profits, CIOs are used to making sure *every dollar* is well spent. They have a lot of practice running IT with locks on their wallet and both eyes focused on their company's bottom line. These CIOs say ROI is the barometer by which projects get approved. Fast payback is a must. Anything considered long term can take a backseat. And answer no to new purchase pitches without regret. In general, single-digit returns are what you'll find here.

CARGILL

INDUSTRY: Agricultural and food products
LOCATION: Minneapolis
REVENUE: \$49B in 2001
EMPLOYEES: 90,000
I.T. BUDGET: \$350M (globally)
I.T. BUDGET AS A PERCENTAGE OF REVENUE: 0.7%
I.T. SPENDING PER EMPLOYEE: \$3,890
PROFIT MARGIN: 0.7% in 2000

DOING MORE WITH LESS:

CIO **Lloyd Taylor** saves money by analyzing line costs—he saved \$250,000 by eliminating 411 calls from within the IT department.

With a low profit margin, Cargill CIO Lloyd Thompson says that you can still be successful with IT, adding, "You have to watch the numbers."



The following six tips are for CIOs from the penny-pinching all-pros.

1 "Almost New" Is Better Than You Think

When it came time to update his infrastructure hardware, Byron Goodwin faced a tough situation. As much as he would have liked to buy some spanking new servers and routers, Goodwin, CIO of the wholesale groceries distributor Associated Food Stores (2000 profit margin: 9 percent), knew his annual \$8 million IT budget just couldn't take the hit.

So when he needed new hardware, he didn't pick up the phone to call Dell or Compaq. Instead, he called a couple of resellers.

"We don't buy new equipment," Goodwin says.

With dotcom failures plentiful and other companies seeking savings through consolidated operations, there is a lot of almost-new equipment that's available for used prices, he says. Last fall, Goodwin purchased storage systems for his data warehouses through a reseller and paid 50 cents on the dollar. Instead of shelling out \$100,000 for the hardware, he paid \$50,000.

Like most companies in the grocery industry, the Salt Lake City-based company faces a crowded competitive landscape growing more intense with new challenges coming from chains such as Wal-Mart and Target, which now carry food items. Overall, the industry's average annual net profit (revenues less expenses) is about 8 percent.

Buying used or secondhand hardware can be a plausible approach to cost-cutting, says Sunil Subbakrishna, a vice president in the IT strategy practice at Mercer Management Consulting in New York City. CIOs need to consider whether the equipment will meet users' needs, and whether maintenance costs of such hardware are higher than on new gear.

2 Software Upgrade? Fuhgeddaboutit.

For many CIOs, the cost of updating and maintaining hardware doesn't even come close to the numerous costs associated with software. There's licensing fees, patches and service packs, maintenance,

customization and frequent upgrades that hit the market faster than some companies can roll out the previous version.

There's an answer. Don't upgrade. And look to negotiate a better deal.

Ted Barnicoat, CIO of Trimac (2001 profit margin: about 3 percent) is well versed in the art of unearthing cost savings from software contracts. His talent is a necessity—Trimac, a bulk carrier and transportation company based in Calgary, Alberta, has

ARROW ELECTRONICS

INDUSTRY: Electronics

LOCATION: Melville, N.Y.

REVENUE: \$13B in 2000

EMPLOYEES: 12,200

I.T. BUDGET: approx. \$100M

I.T. BUDGET AS A PERCENTAGE OF REVENUE: 0.8%

PROFIT MARGIN: 2.8% in 2000

DOING MORE WITH LESS:

CIO **Mark Settle** is delaying an upgrade to Windows XP.

Tips from Low-Margin CIOs

How to get the most from every IT budget dollar

- Invest only in projects that are linked to business goals and will show ROI within three to six months.
- Survey your administrative and infrastructure costs for unnecessary spending that can be cut.
- Decide whether you can forgo in-house software development in favor of keeping development with the vendors.
- Get more for your money by renegotiating licensing contracts with software vendors and service providers on a regular basis.
- Standardize desktops, servers and major software packages to save in maintenance and operations.
- Take a close look at your expenses to be sure you aren't paying for software or hardware that you don't use.
- Look to charge your IT organization's customers for the systems and services they use.
- If the chance is there, take your IT department independent and charge your parent company for IT services as a consultant.

an IT budget of \$5.5 million to support 5,500 employees and 130 branch locations across North America.

Barnicoat's knack for minimizing costs has been honed by years in the trucking industry, a notoriously low-margin business, particularly for bulk carriers that haul loads such as chemicals and paint. Bulk carriers require special trailers, some that can be pressurized or heated, and have very strict delivery deadlines.

Every year, Barnicoat takes a look at software contracts about to come up for renewal and renegotiates with his vendors. "Software is a major cost to us, and we do this because the vendors tend to be flexible about renewal," he explains.

Barnicoat often finds that his organization doesn't need to upgrade to the latest version of a program, and then he decides whether to defer or refuse the upgrade. Recently, he decided to forgo an upgrade to Windows XP.

"We won't do it," he says. "Right now we're paying 25 percent a year for maintenance, and they want 29 percent if we upgrade. We can't afford it, and we don't need it. So my position is we'll wait until our current licenses run out over the next four years." (Barnicoat's position is not unusual. See "The Meter Is Running," available at www.cio.com/printlinks.)

Mark Settle, CIO of Arrow Electronics in Melville, N.Y. (2000 profit margin: 2.8 percent), says he will also delay a move to Windows XP. Settle anticipates saving between \$2 million and \$4 million by upgrading from Windows 98 to XP in a year, rather than doing so now. "We're just moving the cost out, but when we spend the money we will be spending it more effectively," he says.

Another reason Settle thinks it's more valuable to delay the upgrade: The longer he waits, the more time other early users will

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have to discover and fix the inevitable bugs in the system. If the bugs have been patched by the time he upgrades, that's a more effective use of his money, he says.

Subbakrishna of Mercer Management says upgrade delays can save short-term dollars, but they come with a caveat: the need to consider what will happen if the vendor stops supporting an older version of a software product.

3 Let the Other Guys Build It

When there's no avoiding spending money on software, it makes fiscal sense to stay away from software development, says Michael Radcliff, CIO of Ingersoll Rand, the industrial manufacturing company (2001 profit margin: about 4.5 percent).

Radcliff says he lets vendors deal with software development. Instead of customizing software in-house or allocating staff to develop programs, he gets his vendors to do the development and customization work on applications as often as possible. That way,

the cost of development is not borne by him, and there's an immediate ROI, Radcliff says. "It keeps the capital investment on the vendor's balance sheet. And if we're not spending money on development, we can put those funds toward deployment."

Radcliff is rolling out a new finance initiative that will add options for customers who want to lease, rent or buy items such as golf carts, air compressors or construction equipment from Ingersoll Rand business units.

When he bought the software from a vendor (he declines to say which one), he gave its representatives a list of customization requirements and let them do the development. "We don't have a lot of discretionary spending, so we have to be very, very careful where our money goes," Radcliff says.

4 Hunt Down Waste and Kill It

Some of the hidden costs of IT are not exactly IT-related. But that doesn't mean you can't find savings there.

Cargill's Taylor discovered that IT employees were calling 411 so often that it was costing the department hundreds of thousands of dollars in phone charges. Given his company's slim profit margins, Taylor describes himself as a stringent penny-pincher. Every organization has a surprising amount of waste, he says; you have to look in all the nooks and crannies, and train your staff to do the same. "If you create a culture where your employees watch for the little things that cost a lot, you can run a lean organization without sac-

rificing the important things," Taylor says.

Taylor put a stop to the costly calls by blocking the 411 function in the department's phone system. He then posted a link for nationwide yellow pages on the corporate intranet. Without the calls to information, Taylor saved about \$250,000.

Most CIOs can say where they spend money in their department, but they don't have a handle on their actual costs, says Eileen Birge, vice president of the Concours Group, a Houston-based IT consultancy.

"They don't know where the money really goes," Birge says. "You may spend \$10 million in a year, but how does that break down in terms of projects, maintenance, salaries, development and operations? A good understanding of actual costs and their drivers is a very important factor and can save you a lot of money."

CIOs should do an in-depth analysis to find which major groups or activities cost the most, and then find areas to cut in those places, she says. For example, if data storage is eating up a lot of funds, e-mail is often the culprit. By getting employees to clean out their e-mail boxes more often, CIOs could save 15 percent to 20 percent of their actual costs, Birge says.

After examining his spending, Robert Tolbert, vice president and CIO of Lyondell Chemical (2000 profit margin: 10.8 percent) saw that hardware and software were the major cost centers for his IT budget. Tolbert, who holds the same titles at Equistar Chemicals, a joint venture between Lyondell and Millennium Chemicals, says he is in the

INGERSOLL RAND

INDUSTRY: Industrial manufacturing
LOCATION: Woodcliff Lake, N.J.
REVENUE: \$8.5B in 2000
EMPLOYEES: 51,000
I.T. BUDGET: NA
PROFIT MARGIN: 4.5% in 2001

DOING MORE WITH LESS:

CIO **Michael Radcliff** leaves all software development to his vendors.

LYONDELL CHEMICAL

Note: Lyondell's CIO is also CIO at Equistar Chemicals, a joint venture between Lyondell and Millennium Chemicals.

INDUSTRY: Petrochemical
LOCATION: Houston
REVENUE: \$3.2B (Lyondell), \$5.9B (Equistar in 2001)
EMPLOYEES: 8,000 (includes Lyondell and Equistar Chemicals)
I.T. BUDGET: \$100M (includes IT spending for Lyondell and Equistar)
I.T. BUDGET AS A PERCENTAGE OF REVENUE: 1.1%
I.T. SPENDING PER EMPLOYEE: \$12,500
PROFIT MARGIN: 10.8% in 2000
(Lyondell posted a \$150 million loss in 2001)

DOING MORE WITH LESS: CIO **Robert Tolbert** standardized applications across 8,000 computers, cutting the number of applications from 1,400 to 400 and moving from four operating systems to two.



"When IT projects relate to a client's construction project, we pass the costs to them," says Phil Go, CIO of Barton Malow.

process of standardizing the desktop computers and software at each of Lyondell's and Equistar's 33 locations worldwide. Prior to standardizing, Tolbert had to juggle more than 1,700 different software tools and four different operating systems. Upon completion of the project, he will oversee 400 applications and two operating systems. The project will enable him to slash maintenance costs on multiple platforms and consolidate his resources into one centralized data center. This data center holds the resources to manage approximately 8,000 desktop and laptop PCs all over the globe.

"In tight times, you invest in projects that have a swift payback," Tolbert says. "I wanted the desktops and software to be as similar as possible so it was cheaper and there were fewer variables to support."

Budget constraints aside, CIOs know that it makes sense to spend money in IT and cut costs elsewhere in a business. Arrow Electronics' Settle recently rolled out a new set of services on the company's website that lets customers view product availability and see how other customers are utilizing Arrow's products. The project ate a chunk of his budget but saved millions of dollars in call center and help desk costs for the company.

Keeping all projects in line with business goals is essential for every CIO, but it's particularly necessary when one's IT budget is tightly

constrained, says Tom Mangan, a partner in the technology integration services practice at Andersen, a management consultancy in Atlanta. "Every project must be business-focused, with the strongest business case and a clear ROI so that every executive knows where each IT dollar is going, and knows it's a business investment," Mangan says.

5 Bill the Customers

Getting someone else to pay for the cost of your IT projects is a popular tactic used by low-margin CIOs as a way to extend the reach of a limited budget. All it takes is imagination and business sense.

Phil Go, CIO of Barton Malow, a Southfield, Mich.-based construction company (2001 profit margin: less than 1 percent), says he needed a way to differentiate his company from others in the highly competitive construction field without draining his \$5 million budget. He mapped out a strategy for using IT to speed up construction projects, a plan that could put his company ahead of rivals. But his budget would only go so far. So he decided to deal with the cost of technology the same way his company managed the cost of concrete or labor crews: He billed the client.

"We are a professional services firm," Go says. "When IT projects relate to a client's construction contract, we pass the cost on to them."

Go began using an ASP (though he declined to say which one) to handle all aspects of project management, a move that few other construction companies have made. The result: Buildings are completed on schedule about 50 percent more often than they used to be. He also set up a WAN at each construction site that maximized efficiency by linking the construction sites to Barton Malow's headquarters.

The monthly cost of both the ASP and the WAN are written into the contract and billed to the client site as part of the job cost, Go says. (If it's not written into a client's con-

tract, different operating groups at Barton Malow absorb the costs.) This way, Go is able to help the business and fund projects without dipping into his own budget.

"These are investments we must make in order for the job site to be more efficient and for projects to be completed on time," Go says. "Not many companies do that because they don't see an immediate return, but we're getting very positive feedback from our clients."

BARTON MALOW

INDUSTRY: Construction
LOCATION: Southfield, Mich.
REVENUE: \$1.2B in 2001
EMPLOYEES: 1,200
I.T. BUDGET: \$3.5M
I.T. BUDGET AS A PERCENTAGE OF REVENUE: 0.4%
PROFIT MARGIN: <1% in 2001

DOING MORE WITH LESS:

CIO Phil Go bills his clients for the cost of IT projects related to construction contracts.

6 Hang a Shingle

Steve Hassell, CIO of the Northrop Grumman Newport News Shipyard (2000 profit margin: 4.5 percent), took a different route than Go to reach a similar advantageous spot.

In early 2001, in concert with business leaders at the Newport News, Va.-based company, Hassell made his IT department a wholly owned subsidiary of the Shipyard. As president of the new entity called Naptheon, Hassell (who retains his CIO title) signed a five-year service-level agreement with the parent company, Newport News Shipyard, and now the IT department operates like a paid consultant. Hassell bills Newport News for all costs related to the department and its services. "Before, we used to have emotional yearly debates about the cost of IT," Hassell says. "This step took all the emotion out of it. Now we have cost and quality numbers based on stand-alone research, and we can do an objective business case for any project just like any other service provider."

The move helped Hassell get his arms around the total cost of IT, from maintenance and projects to how much it cost his employees

to park their cars. It also gave him a definitive way to ensure his department's service levels are up to par. His department benchmarks itself against other IT service providers to ensure good cost benefit. Another benefit: The IT and business sides are collaborating more than ever. Each business unit vice president is assigned an IT partner, whose job is to understand how IT can help the unit. When the Shipyard's engineering division needed to implement a CAD package, creating a project team comprising engineering and IT resources was a piece of cake, Hassell says.

NORTHROP GRUMMAN NEWPORT NEWS SHIPYARD

INDUSTRY: Shipbuilding

LOCATION: Newport News, Va.

REVENUE: \$2.3B

EMPLOYEES: 17,800

I.T. BUDGET: \$160M (to operate the IT subsidiary Naptheon)

I.T. BUDGET AS A PERCENTAGE OF REVENUE: 8%

I.T. SPENDING PER EMPLOYEE: \$8,988

PROFIT MARGIN: 4.5% in 2000

DOING MORE WITH LESS:

CIO **Steve Hassell** made his IT department a wholly owned subsidiary called Naptheon that bills its costs back to the parent company.



Steve Hassell, CIO at Northrop Grumman Newport News Shipyard, is able to benchmark his IT operation against other IT service providers.

"We didn't have a turf war over who was in charge or who would control resources," he says. "They trusted each other and had been integrated for long enough that they were used to working together as a team. Even the engineering vice president had no problem letting the divisional CIO take leadership of the project."

You Didn't Invent a Budget Squeeze

Managing with tighter budget controls may be new to you, but CIOs in low-margin industries have been doing it for years. Budget constraints will force you to be creative and resourceful, but working on a shoestring shouldn't paralyze you, Cargill CIO Taylor says.

"Just because we operate in a tight sector doesn't mean we can't do new or exciting things, like the proprietary plant optimization system we just built," he says. "You just have to watch the pennies." **CIO**

Do you have pointers on how to manage budgets during tough times? E-mail them to Staff Writer Simone Kaplan at skaplan@cio.com.

PEER RESOURCES

The economics of IT investments explained

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TAKING OVER THE CHAIN GANG

As IT becomes a primary driver of business strategy and profits, it makes sense to put the CIO in charge of your company's supply chain **BY BEN WORTHEN**

Reader ROI

- ▶ Learn why it makes sense to have the CIO in charge of the supply chain
- ▶ Discover why CIOs are uniquely qualified to drive logistical change
- ▶ Understand what it takes to make such a dual role work

Jeff Orton's 1997 promotion to CIO and vice president of logistics at Wilsons the Leather Experts wasn't the smooth transition he had hoped for. No one had heard of an IT guy, one without logistics experience no less, running a supply chain organization—particularly for a company as large as the \$720 million a year Brooklyn Park, Minn.-based apparel maker. Not surprisingly there was resistance, typified by a lunch meeting with a supply chain management vendor Orton wanted to replace. The vendor listened as Orton described his plan to expand Wilsons' supply chain system from the point of sale to the manufacturing floor, and his concern that the vendor's flow of goods software wasn't robust enough to handle the increased information load. Rather than explain how the software could help, the vendor insisted that the problem was Orton's logistics ignorance. "It was years ago, and I still get mad thinking about it," says Orton. "I may not have had logistics experience, but I am a good businessperson."

The redesigned supply chain has been in place for four years now and has saved Wilsons millions—a far cry from the spectacular failure the vendor predicted. Skeptics may call



Jeff Orton, CIO and vice president of logistics at Wilsons the Leather Experts, says taking over the supply chain didn't go as smoothly as he hoped.

Orton's success in wearing both hats a fluke, but the fact that other companies are tapping their CIO to head up the supply chain suggests that the idea has merit. And this faith in the CIO as a business process leader as well as an IT chief is yet another indication of the increasing role that CIOs are playing in central business decisions.

The dual role makes sense because the supply chain is the most technology intensive part of many companies. In the old days, retailers bought something for \$20 and sold it for \$40—the classic markup. Today many retailers can mark up their

goods only a fraction of that. Profits require bulk sales and an efficient supply chain. Good automated systems are the best way to keep track of and manage the entire process, from the ordering of raw materials to manufacturing, shipping and delivery.

In essence, IT has become the driver for those businesses, and the CIO understands IT better than any other top executive. As the role of IT in a company grows, so does the CIO's strategic importance. The quintessential example is ERP applications, the colossal software packages that provide a common system and data format for every department.

An ERP rollout touches every part of a company, often connecting all previously existing systems. The result is that CIOs not only become familiar with how other parts of the company do business, but in most cases they actually redesign the business processes to work with the enterprisewide system.

London School of Business Professor Michael Earl says that CIOs who have overseen ERP projects tend to assume a greater role in their company. "It begins with the realization that all that change is enabled by IT, and that the systems are actually responsible for the processes," says

Earl. "The senior IT executive is actually changing [the way business is done]. They understand processes and projects."

All the CIOs interviewed for this article either completed an ERP implementation or spent at least a year and a half researching one, and they list that experience as one of the reasons they were given their dual IT and supply chain responsibility. Each insists that combining the role has given him a clear mandate to run the supply chain as efficiently as possible. A few companies are so impressed with the advantages of having the CIO run both organizations that they treat the dual role as a closely guarded competitive secret. The ones who will talk say that having the same head for IT and the supply chain means that the logistics operation receives more technology attention than it would otherwise, and new supply chain technologies are implemented faster. In general, CIOs say, the two departments can be operated more efficiently when the CIO is in charge of both.

"We were able to make IT more business-focused and logistics more IT-dependent," says Orton. "We have been able to elevate the business impact of systems and logistics so that we are almost as important to the overall profits as the merchandising stores."

The Coup de Grâce

FOR THE PAST 60 YEARS OR SO, COMPANIES have structured themselves into functional divisions or silos that evolved in part because a large company has too much going on for one person or group to handle. In this traditional organization, IT is a department with a titular head, as are logistics, finance, HR and so on. The model makes sense. It allows workers to become experts in one particular field and provides for a clear career path. In the 1980s and mid-'90s, IT fit nicely into this structure; IT's job was to implement systems that improved other departments' efficiency, such as an accounting application for the finance department.

The coup de grâce was ERP, which linked the different departments through a common system. Prior to ERP (or any other enterprise-unifying IT project) there was no easy

Five Reasons Why CIOs Should Take Over the Supply Chain

- Combining the positions of CIO and head of logistics sends a message that the supply chain operation is of the utmost importance to the company's overall success.
- As improvements to the supply chain become more and more technology-oriented, it makes sense to have a boss who understands technology.
- As head of both IT and logistics, the CIO can better prioritize which projects need to be done and when.
- Rather than engaging in back-and-forths with the various department heads, a CIO wearing both hats can define the parameters for a supply chain project.
- Putting the CIO in charge of logistics makes it more likely that the companywide ERP system will pay dividends in streamlining operations.

Two Reasons to Tread Carefully

- The job may be too much for one person to handle.
- People who work in the logistics department may resent an outsider coming in as their boss.

—B.W.

way to measure the impact of an event across the company, and employees were forced to work in relative isolation, focusing on the more manageable question of how an event impacted their specific area of the company. Now technology can provide a data intensive understanding of how each action affects other areas and the company as a whole.

Consider Owens Corning. A mid-'90s SAP implementation at the construction materials manufacturer boosted the credibility of its CIO, David Johns, throughout the company. But it took an extreme circumstance to vault Johns into the dual role of CIO and chief supply chain officer. In October 2000, the Toledo, Ohio-based company filed for Chapter 11 to protect itself from court judgments in excess of \$5 billion stemming from earlier sales of insulation that contained asbestos.

After emerging from bankruptcy, Owens Corning began a companywide restructuring in April 2001 aimed at increasing efficiency across the company. Johns's new position is a direct result of that. Before the April reorganization, Owens Corning had separate

heads for IT, supply chain and customer service. The three departments tried to work closely together, says Johns, but the structure "didn't work as efficiently as it could."

The separate departments within Owens Corning were often victimized by conflicting goals. For example, the transportation group, whose expenses consumed 60 percent of the company's \$600 million supply chain budget, tried to cut transportation costs. The transportation manager believed that the cheaper the carrier, the better he was doing his job. But the lowest-cost carrier was dirt cheap for a reason: It didn't pick up or deliver the order on time. Similarly, the inventory group's goals conflicted with customer service's goals. The warehouse manager wanted to drive inventory down to zero, but when the warehouse ran out of an item, it extended the time to ship and again resulted in dissatisfied customers. Each group did its job—and did it well—but the lack of alignment among the organizations ended up increasing the overall cost.

Johns compares what happened to a



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stool, which is useless unless all three legs are the same length. "Having two legs going for lowest cost doesn't sit with the third leg that is working for customer service," he says. "By bringing those three organizations together, we have a better idea of how inventory, transportation cost, technology and customer service all fit together."

The restructured organization now has one head, Johns, who oversees customer service, logistics and IT, and has a deputy for each. With that structure in place, Johns is able to make decisions with the whole company in mind. For example, he used some of the tools in the SAP package to find the best shipping routes—considering on-time arrivals, cost and other factors—and rerouted as

much traffic as possible along them. In total, Owens Corning sliced \$32 million out of the supply chain budget in the eight months after the reorganization, and Johns expects to save an additional \$60 million this year.

Johns insists that separate organizations, no matter how close together they work, could not attain the same savings. In order to coordinate the employees who execute the day-to-day decisions, the organizations needed to be combined. For instance, the transportation manager who decides which shipper handles which route now works in the same group with the person who handles service for the customer. And both use the same system to do their job. "We learned [from installing] our SAP system that you can't fix a problem

PEER RESOURCES

What your colleagues need to know about SCM

To educate nontechnology peers about IT's role in supply chain management, e-mail them a copy of **YANK YOUR CHAIN** from our sister publication, **Darwin**. Find it at www.cio.com/printlinks.

by just throwing a system in there," says Johns. "One could say that there is more of a technology focus in supply chain, but that is not the fundamental reason that we combined them. We understand that it is not just technology but the relationship between the people, process and technology."

The people, process, technology mantra is repeated almost verbatim by Orton. Like Owens Corning, the IT department at Wilsons gained broader credibility after implementing a companywide software package. Although Wilsons considered ERP, it ultimately decided to link several different best-of-breed solutions and Lawson's financial and human resources packages. In the process, the IT department learned how each functional area's systems affected one another—and how they could best work across the company to improve the supply chain. The packaging of wallets—Wilsons' best-selling product—is a good example. Data from the stores showed that it would be most efficient to replenish wallets in batches as opposed to individually, the practice at the time. They were bought by retail stores in batches, so why not manufacture and ship them that way? Armed with that information, Orton insisted that Wilsons change the way the factories packaged the wallets and the way the distribution centers processed them. The shift incurred a major financial charge in two functional areas, but it improved efficiency across the supply chain. "The point is you have to see across departments and understand more than your own process," says Orton. "There is no way you can look at one part of the supply chain and say, 'I am done.' You have to look at the whole."



David Johns, CIO and chief supply chain officer of Owens Corning, was vaulted into the dual role by an extreme circumstance: his company's bankruptcy.

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Combining IT and logistics also ensures timely execution. "Logistics may have a number-one priority of implementing an advanced ship notice system," says Orton. "For [IT], this priority could be down the list. Managing both departments helps us get to a better alignment faster."

Culture Clash

ORTON SAYS THE CEO PUT HIM IN charge of logistics because the company understood IT's potential to help the supply chain. However, even the CEO's endorsement didn't ensure a peaceful transition. Vendors weren't the only ones that tried to take advantage of his inexperience. Veteran Wilsons employees were slow to accept his

"You work with these people all the time, but to take on other areas of responsibility is too much." (For more on this, read "IT Takes Two" at www.cio.com/printlinks.) It has proved to be so in one case: Thomas Conarty, who was in charge of both IT and logistics at Bethlehem Steel, was forced into retirement in December 2001 as part of the company's Chapter 11 restructuring. His position has since been split. Other CIOs say that their dual role works only because they themselves have had extensive experience working in other parts of the company. Richard Mazzoni, former vice president of IS and logistics at Levitz Furniture, started there in the 1970s and worked all across the company—including showrooms—before becom-

North Carolina and required suppliers to ship all finished goods to those hubs. From that point on, Levitz was able to ship full truckloads of goods to their retail stores.

Mazzoni's efforts, however, were too little and too late. In 1997, the Boca Raton, Fla.-based furniture giant declared bankruptcy. The ERP project was killed in 1999, even though it was 70 percent complete. And Mazzoni himself left the company in June 2001 after it was sold to the Levitz Home Furnishing Holding Corp.

But without his seniority and experience in other parts of the business, he says, he wouldn't have had the credibility necessary to even attempt the job. "Taking over logistics was a natural step," says Mazzoni, "but it wouldn't have been natural without me."

Wilsons' Orton, who has a strictly IT background, is uncomfortable with the notion that giving the CIO command of the supply chain should come down to the strengths of any one individual. "The deal is that [the company] recog-

nized the business issues," he says. "It is very much a collective effort."

In fact, Earl says company executives often use the dual role to promote the CIO into a greater leadership role in their company. As IT and business processes become more and more interwoven, he says, top executives recognize that the CIO should be contributing more to business strategy.

The bottom line? Combining the two positions is unorthodox and risky, but companies that have taken that step consider it a risk worth taking.

"Our job, to be successful, requires us to look across and at the bigger scope," says Orton. "I think there are certain departments—logistics and systems being one of them—where you actually get a better result if you can see across them." **CIO**

Are you in charge of other functional areas besides IT? Are you overwhelmed? Share your stories with Staff Writer Ben Worthen at bworthen@cio.com.

SKEPTICS MAY CALL

JEFF ORTON'S SUCCESS IN THE DUAL ROLE AT WILSONS A FLUKE, BUT THE FACT THAT OTHER COMPANIES ARE TAPPING CIOs TO HEAD UP THE SUPPLY CHAIN SUGGESTS THAT THE IDEA HAS MERIT.

leadership. "I hate saying this, but people did try to take advantage," he says. "They had an expertise, but they wouldn't volunteer answers. If I didn't ask the right questions, I wouldn't get to where I needed to go." To help win their loyalty, Orton wrote personalized Christmas cards to all his employees, specifically mentioning how each was helping the business.

Other CIOs have had to overcome a similar culture clash. When Johns took over as chief supply chain officer at Owens Corning, he says, supply chain employees initially thought, Jeez, we will be turned into techweenies. But he worked hard to convince them that they weren't just working for IT but a new umbrella organization, and employees eventually realized the benefits of realignment.

There are other caveats to such a dual role. Michael Earl, for instance, wonders if it isn't more than one man can handle. "The CIO has become such a big job," he says.

ing vice president of IS in 1985. He began a major ERP implementation in 1995 and took over the logistics operation in late 1996. The ERP project only enhanced Mazzoni's companywide view. "The entire process gives you a complete and thorough understanding of the entire enterprise," he says.

One thing he learned was that the logistics operation was in shambles. Every year Levitz spent \$450 million on goods but spread it out to more than 200 suppliers. As a result, the furniture company was not able to gain any economies of scale. Furthermore, the logistics managers were still using spreadsheets to coordinate the transportation of goods from the suppliers to the approximately 150 stores. In some cases, Levitz would have to pay for an entire truck to transport only one or two couches. Mazzoni put two of his top business analysts in charge of redesigning the logistics processes. Between 1997 and 1999, Levitz opened two central distribution hubs in California and

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CONTINENTAL DIVIDE

While Europe has adopted strict privacy regulations, U.S. companies are still collecting and trading their customers' info like it's going out of style. If Simon Davies has his way, it will.

BY DAINTRY DUFFY

IN 1994, CITIBANK AND THE GERMAN NATIONAL Railway agreed to cobrand a credit card. Simple? Hardly. Mindful of the difference in European and U.S. privacy regulations, German data protection commissioners (government officials who ensure privacy regulations are followed) quickly stepped into the situation. They feared that the free-market, self-regulatory approach that U.S. corporations have taken to consumer security could jeopardize the privacy of German consumers whose personal information would be sent to the United States for processing. The commissioners forced Citibank to develop an expensive contractual solution that would allow German customers to access their own records. It also established limitations on the collection and use of customer information, and ensured that the information would be kept within the company and not brokered out for unrelated purposes. All of those conditions, of course, are established rights for Europeans.

Simon Davies, director of London-based Privacy International and visiting fellow in the Department of Information Systems at the London School of Economics, estimates that the nine-month project delay may have cost Citibank anywhere from \$10 million to \$50 million in lost opportunity and legal costs. He wants the U.S. government to step in and offer American consumers the same legislative protections and redress that European citizens enjoy. Further, Davies warns that U.S. companies that don't start to align their privacy practices with Europe's run the risk of losing business from European companies and consumers, and further destabilizing the relationship between American industry and its European counterparts.

CIO recently spoke with Davies about why Europe and the United States have a hard time agreeing on a privacy standard, the effect it is having on free trade, and what CIOs in the United States can do to avoid losing money and business overseas.



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Simon Davies, director of London-based Privacy International, warns that if U.S. companies don't align their privacy practices with Europe's they run the risk of losing business from European companies and consumers.

CIO: How did the United States and the European Union (EU) develop such different views on how privacy should be handled?

Davies: In Europe, World War II changed the way people viewed the relationship between the citizen and the state. Countries were invaded and occupied. Governments turned on their citizens. People didn't trust corporate and government power structures. People saw that information was power and that ultimately the freedom of a nation and of the individual depended on a healthy relationship between citizens and organizations.

The underpinning of that belief turned out to be data-protection legislation. European companies have learned to respect fair information practices and to obey a range of protection laws that have existed for more than 20 years. [See "A Safe Harbor," Page 96.] The United States, on the other hand, views those practices with a more flexible outlook, and the lack of U.S. law probably comes down to one or two ingrained perspectives. The first is a suspicion of federal government agencies, and the second is a cultural imperative that supports the idea that self-regulation will and can ultimately work.

What effect is this situation having, short and long term, on trade between the United States and the European Union?

Ultimately, there are likely to be many trade issues, and I suspect legal cases will be

brought up that will destabilize trade between the two regions. If, for example, investors looking at trans-Atlantic deals see instability in future arrangements, they're less likely to invest. Currently there are all sorts of uncertainties in trading between America and Europe because no one's quite sure at which point a civil action could arise, which would paralyze the exchange of busi-

ness between the two. Safe Harbor, which was the U.S. Federal Trade Commission and European Union privacy compromise, was proposed as the solution to this paralysis.

"COMPANIES IN EUROPE expect that incorrect information or information that has been collected without customer consent must be expunged. The U.S. has no such requirements."

ness between the two. Safe Harbor, which was the U.S. Federal Trade Commission and European Union privacy compromise, was proposed as the solution to this paralysis.

What does all this mean to the consumer?

In Europe, a customer's right to see his company-held records is almost absolute. Any customer can contact a company and expect his file to be forwarded. Therefore the way information systems are established in European countries is markedly different. When systems are developed, one of the design requirements is access to all customer information. It is typical in Europe to be able

to pull information on any customer on request from every area of the company and to isolate the flow of that information outside the company. Companies now expect that any incorrect information or information that has been collected without consent must be changed or expunged. The United States has no such requirements and no such expectations.

In fact, you argue that many U.S. business practices actually foster the leakage of personal information outside companies. The leakage of personal information is an industry unto itself in the United States. Take, for example, the information brokerage industry—the intermediaries who purchase personal customer data from websites and create specialized lists, which they then sell to other companies. That industry could not survive in its current form in Europe. It would simply be illegal. Other areas of great concern are the outsourcing of personal data to developing countries or to prisoners for processing, and the selling of customer data to third parties in the event of a takeover or sale of the company.

What is the current status of a global privacy standard? Is that idea dead in the water?

We had always hoped that the European directive would become the default global standard. It would only have required U.S. agreement. Canada has moved in that direction. Other countries, such as Australia, are slowly moving in that direction. The United States stands alone in fighting the idea of specific legal privacy protections. My position, and Privacy International's position, has always been that companies should have seen the light by now and should resent the current situation. Companies now engaged

THE EU PRIVACY RULE BOOK

European countries have had privacy regulations for years. In 1995 the disparate rules were synthesized into the EU Data Privacy Directive, a single policy covering all 15 member countries.

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—D.D.



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in trade with European states have to go through a long and expensive contractual process. They should see that it would be far more sensible to support the idea of federal laws so that these contractual solutions wouldn't be necessary.

What do these contractual solutions mean for a U.S. company that is trying to do business in Europe?

Essentially, U.S. companies have to create an environment that replicates the European conditions. The contracts vary from situation to situation, but by and large they establish the European fair information practices and data protection principles within the borders of the United States to cover the data exchanged in a specific business arrangement. We have had many occasions where contractual deals have been necessary and deals that have been suspended or information flow paralyzed

A SAFE HARBOR

Despite disparate privacy laws, the United States and the European Union have attempted to reach a compromise, but few companies are adhering to it

When the European Union passed its privacy directive (see "The EU Privacy Rule Book," Page 94), it was clear that the effect on U.S. companies doing business abroad could be significant. A diplomatic compromise called Safe Harbor was brokered between the U.S. Federal Trade Commission and EU authorities in an attempt to bridge the privacy differences. When U.S. companies certify with Safe Harbor, they agree to follow some of the basic EU guidelines for privacy protection, hopefully avoiding the prospect of having their network operations in Europe shut off. Few companies have joined Safe Harbor, however, and it does not protect the United States from legal action from Europe. —D.D.

privacy. The CIO can advocate that the company pursue best practices at every level and then take those best practices and sell them to other companies and to the government. He can make sure that people both within the industry and among consumers know that the company has

company. That would be a giant step forward. It would go beyond the Safe Harbor conditions and would establish to customers that the company respects their rights and understands that the relationship between company and consumer is a two-way affair.

What do you consider the likely outcome of the tug-of-war between the United States and the European Union with respect to privacy?

I suspect that there are two possible avenues that would lead to the same result. The first is a slow process of corporate evolution. As companies become more global, maybe there will be a change in U.S. corporate practice. The second and more likely avenue is a high-profile legal action or series of legal actions against key data flows between Europe and America. I'm thinking, for example, of the banking system, health-care research, credit cards, and travel and transport industry. The whole edifice could be punctured with the appropriate civil action from Europe. And it is quite likely that if the United States fails to show good faith and if Safe Harbor collapses under its own weight, then the only course left for Europeans is to engage in a systematic paralysis of business dealings between the two regions. I consider that to be quite likely. **CIO**

How does your company handle international privacy concerns? E-mail Senior Editor Daintry Duffy at dduffy@cio.com.

"A CIO CAN BECOME a champion of better privacy. The CIO can advocate that the company pursue best practices at every level."

because the U.S.-based organization could not offer those protections.

How do you make the case to U.S. companies that they should do something about privacy in the current climate where neither the government nor consumers are forcing their hand?

I'm not suggesting that companies should reengineer themselves overnight. Even within Europe there have been transitional periods. But my guess is that if U.S. businesses were to engage in designing privacy into their emerging systems, they would discover that the cost is marginal. What a tremendous way to engage in best practices in customer relations.

What should the CIO's role be with respect to privacy?

A CIO can become a champion of better

taken positive steps to become a good corporate citizen. A CIO should aim to be ahead of the trend, ahead of the demands of customers. Best privacy practices fit squarely within those objectives.

What best practices would you suggest that CIOs focus on?

One of the important areas a CIO can concentrate on is providing specific rights to the company's customers, and one that comes to mind immediately is the right to view and correct personal information held by the

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Skilled practitioners of the art of friendly persuasion: (clockwise from bottom left) ServiceMaster CIO Jim Goetz, Stride Rite CIO Yusef Akyuz, Baptist Healthcare CIO Alfred Barea, and former Gillette CIO Pat Zilvitis.

THE Art OF THE Shmooze

Four case studies for IT executives on how to influence their peers when planning and implementing IT projects BY MERIDITH LEVINSON

Nestled in plush velour seats, Dr. Charles Hornaday, his wife and his daughter sat rapt as they watched the Louisville Ballet's production of *Do You Dare* at the Kentucky Center for the Arts.

After the dancers curtsied and took their bows, after the applause and bravos faded away, the Hornadays went backstage to attend a private reception. There, they met up with their host, the man who had provided their tickets, Alfred Barea, CIO of Louisville, Ky.-based Baptist Healthcare and then-member of the Louisville Ballet's board of trustees. Barea approached Hornaday, who was at the time president of the medical staff at Baptist Healthcare. The two men exchanged pleasantries, and then Barea excused himself so that the Hornadays could get back to the party.

Barea didn't have a specific reason for inviting the Hornadays to the ballet that

evening in November 1997, other than the fact that Hornaday was his personal physician. He knew, however, that Hornaday was a power at Baptist, and "I knew this was somebody I needed to get close to because he was the president of the medical staff and because he was interested in computers," says Barea.

Six months later, Sue Tamme, president of Baptist Hospital East—one of six hospitals in the Baptist system—turned up in

Barea's office. He needed a physician from her hospital to be part of the steering committee Barea had set up to oversee the implementation of the new McKesson electronic patient record system that would take the place of handwritten notes and charts. The system was already running in three of the six Baptist hospitals, but two, Baptist Regional Medical Center and Western Baptist Hospital, absolutely, positively wanted nothing to do with it. After all, who was Barea—a CIO, not a medical man—to tell them how to manage their patients' care?

Reader ROI

- ▶ Learn the importance of informal exchanges in rallying support for projects
- ▶ Read why it's important to understand your colleagues' needs as well as or better than your own
- ▶ Understand how to assess the level of support you have for any given project

Barea knew that ultimately the physicians would have no choice. If Baptist didn't start running the system voluntarily, the federal government would eventually force them to use something like it to crack down on the industrywide problem of medical errors. But Barea also knew the system would be adopted more easily—and would in fact work better—if the doctors came on board willingly. Tamme suggested that he ask Hornaday to join the committee, and today, Hornaday is a vocal supporter of using the system throughout the entire health-care organization. And although Baptist Regional and Western Baptist are still not running it, Barea is confident that with Hornaday's support, the hospitals will be on the system by next year.

When Barea, who had previously worked at Spartanburg Regional Medical Center in Spartanburg, S.C., arrived at Baptist in 1997 as its new CIO, he understood instinctively that

which developed Ginger, Dean Kamen's human transporter.

"A lot of IT professionals are way more comfortable implementing than spending time day-to-day with senior management," Zilvitis continues. "It's too easy to go to a high-level meeting, sell a concept and walk away to execute it without thinking about keeping other people involved. Maintaining that involvement requires you to reach out of your comfort zone."

Leaving one's comfort zone literally means stepping out of IT's friendly confines, shelving the PowerPoint presentations and seeking out opportunities to talk to people. If CIOs don't build relationships with the right people, they'll have difficulty pulling off projects—not to mention keeping a steady job. According to Bill Hagerup, a senior associate and workshop facilitator with Ouellette & Associates Consulting, an IT development organization in Bedford, N.H., a CIO's inability to influence,

negotiate, and establish trust and credibility with senior leadership is the single most significant factor in explaining why CIOs fail.

And CIOs shouldn't wait to reach out until they need to rally support for a specific project. They should do it anytime, anywhere. For example, when Zilvitis was at Gillette, he took advantage of chance meetings in



"A LOT OF I.T. PROFESSIONALS are way more comfortable implementing than spending time day-to-day with senior management."

—PAT ZILVITIS, FORMER CIO, GILLETTE

meeting important people in the community and throughout Baptist Healthcare would be a critical part of his job. And he knew the ballet would be a good place to learn who those people were. In fact, joining the ballet board has paid off in ways Barea hadn't even imagined. "I never dreamed I'd be able to use it with the doctors by offering them free tickets to the ballet," he says. When it dawned on him that he could build relationships and make deposits in the favor bank this way, he took advantage of it. And he still does.

The Science of Shmoozing

It may come as a surprise to CIOs who think that a nose to the grindstone is all they need to keep their projects and career on track, but to a significant degree, project success depends as much on whom you know as on what you do or how you do it. Experienced CIOs agree that ongoing support from executives and influential colleagues is the only way to ensure successful project implementations.

To foster, cultivate and maintain that backing, CIOs must confront one of their biggest challenges: keeping stakeholders involved. "As I look back on my career, maintaining executive interest in long-term projects was always something I could improve on," says Pat Zilvitis, former CIO of Gillette in Boston and consulting CIO for Manchester, N.H.-based Segway,

the company gym to update his peers on what IT was doing. "The challenge is to keep the critical elements of what the CIO does prominent in the minds of the functional executives so that when you need support, you can get it," he says.

Barea courts colleagues at social events. Yusef Akyuz, CIO and senior vice president of IT for Stride Rite, pounds the pavement in the shoemaker's Lexington, Mass., office. "I like to meet my [internal] customers in their offices. It gets the message across that I'm empathetic to their needs," he says. Downers Grove, Ill.-based ServiceMaster CIO Jim Goetz says that informal encounters are extremely valuable for connecting with important executives.

These CIOs understand the importance of shmoozing. And they understand that the key to successful shmoozing is to keep in practice. Then, when the CEO turns to you in the elevator and asks you to explain why that e-business implementation is six months late and \$6 million short, you can do so with *sprezzatura*, an Italian word that refers to the ability to execute difficult tasks gracefully. The Renaissance ideal of *sprezzatura* was propounded by Baldassare Castiglione, author of *Il Courtigiano* (*The Book of the Courtier*), a series of dialogues on courtly behavior, whose messages about navigating the corridors of power are as relevant today as they were in the 16th century.

To be successful, a CIO must possess some of the qualities

of Castiglione's ideal courtier, such as frankness, a dignified comportment and, of course, *sprezzatura*. But instead of turning to Castiglione for advice, let's sit at the feet of Akyuz, Goetz and Zilvitis, and listen to the dialogues in which they engaged their colleagues.

DIALOGUE 1: IN THE LOCKER ROOM

ENTER THE CIO, PURSUED BY AN ANGRY VP.

Pat Zilvitis, then-CIO at Boston-based Gillette, had just finished his workout in the building's gym and had staggered into the locker room to change when a vice president for one of Gillette's geographical regions approached him.

It was 1998, and Gillette was in the middle of a painful ERP deployment. The company's sales force and distribution center staff were struggling to learn new processes while trying to ship orders and serve customers.

The vice president, who had also been working out, was not happy. "One of my premier customers is complaining that I can't deliver the right products at the right place and time, and I think it's because of the new system," he said, by which he meant Zilvitis's system. Why, the vice president asked angrily, did his customer get only partial fulfillment on an order when there were enough products between two Gillette warehouses to fill the order completely?

The vice president had a right to be upset. Gillette had what the customer needed. The problem was that the products were not stored all in one warehouse but in two. Prior to the ERP implementation, shipping from multiple warehouses wasn't a logistical problem; it was the way things were done. It was, however, a financial problem, adding significant costs to Gillette's bottom line. Gillette aimed to cut these costs by setting up rules that instructed the new order-fulfillment system to ship only from the warehouse geographically closest to the account. Unfortunately, that meant the vice president's customer got shorted and the vice president was miffed.

Taken aback by his colleague's question and his testy tone, Zilvitis had to compose his response quickly. He answered honestly and directly.

The customer, in this case, was not the issue. Shipping products from two or more warehouses, Zilvitis explained, simply cost the company too much money. Shipping from one warehouse, and one warehouse only, was the way the ERP system was configured from the get-go. The vice president might not like it. The customer might not like it. Even Zilvitis might not like it. But that's the way it was.

"Oh," the bemused vice president responded. Though Zilvitis's answer didn't solve the vice president's customer service problem, at least it was an explanation he could understand. Then the two set out to determine a way to ship full

Tips for Becoming a Shmooth Operator

1 WHEN DEALING with colleagues, seek first to understand, second to be understood. Once you find out what others' concerns are, you can place their interests in the context of your project.

2 IT'S NOT ENOUGH to have convictions; you have to communicate them to your peers. Wander around your office talking up your project and collecting feedback on it.

3 ZERO IN ON the most influential people in your organization. Those individuals may not necessarily be the top executives. Find out who they are by asking your colleagues who they think holds the power and whom they respect. Once you identify the powers that be, make an effort to talk with them regularly.

4 DON'T WASTE your political capital. If you have a project you want to green-light but you know the CFO or a vice president in another division thinks it's a bad idea, consider whether the project is a hill you want to die on. If so, then mount your campaign. If not, save your ammunition.

5 ALWAYS GIVE CREDIT to someone else. When the CEO congratulates you on a successful implementation at a shareholder meeting or in his office, give credit to the individuals who've assisted in making the project a success. In addition to your IT staff, that includes the business users who used to be resistant but who came on board when push came to shove.

—M.L.

orders to customers without incurring extra costs.

If Zilvitis had been confronted by the vice president in an official meeting, the CIO might not have been able to answer as directly. Admitting that the customers' interests may not have been foremost in designing this aspect of the ERP system could have led to a drawn-out battle over company strategy, with people taking sides across the mahogany table.

It was also better that Zilvitis's conversation took place in the locker room because the casual environment allowed the vice president to get his anger off his chest. Once that happened, he could relax and listen while Zilvitis leveled with him, peer to peer.

The other lesson from Zilvitis is not to wait for interactions like that one in the gym but to seek them out. It may mean simply walking over to someone's office to begin a dialogue. Though Zilvitis's encounter was somewhat confrontational, yours doesn't have to be. If you reach out and begin the dialogue with your colleagues on the business side, as you'll see in the following example, you'll be much better prepared to answer their questions and less likely to find yourself in a confrontational situation.

DIALOGUE 2: IN THE HOTEL LOBBY A WEARY CIO WORKS THE ROOM.

Around 7:30 p.m. on Dec. 11, 2001, the top executives of Downers Grove, Ill.-based ServiceMaster, an enterprise that owns and operates 11 home service companies including TruGreen ChemLawn lawn care, Terminix pest control and Merry Maids cleaning service, drifted into the grand lobby of the luxurious Peabody Hotel in Memphis, Tenn. The executives had just finished 10 hours of meetings about the company's Six Sigma initiative and were checking their voice mail messages on their mobile phones and chatting. Ducks paddled around the marble fountain in the center of the lobby. A pianist tickled the ivories on a Steinway.

Fighting fatigue, CIO Jim Goetz resisted the urge to retire to his room. Instead, he began working the lobby. In Goetz's opinion, these opportunities to speak with colleagues outside

legacy systems to which they were accustomed. Some of the divisional presidents were also resistant to the project but for a different reason. Goetz's approach—a centralized database that all the divisions were required to use—was philosophically new to ServiceMaster and, perhaps, threatening to the divisions that were used to initiating and implementing projects on their own. Goetz's project, in contrast, was spearheaded by a company-wide team composed mostly of corporate IT staff.

Goetz had two challenges: to sell the branch employees on the utility of the Internet as a reporting tool into the database, and to convince the divisions of the value of a centralized implementation. "[Centralization] is my biggest challenge, and I use every opportunity to talk about it," he says.

Back in the lobby, Goetz collected himself. It doesn't matter how tired I am. This is my one opportunity to catch someone, identify with him and sell him on the Internet as a way to deliver Six Sigma improvements, he told himself.

He approached a division president who was talking with the president of another division. He waited for a pause in their conversation and then broke in by asking about a topic that had come up during that day's meeting.

"What do you think about devoting your best people *solely* to the Six Sigma initiative?" Goetz asked.

"It's going to be hard, but it's worth doing," the president responded, emphasizing the word *hard*.

By agreeing to assign his best people exclusively to the new initiative, the division president was showing his support for the Six Sigma project. But Goetz interpreted the stress on *hard* as a signal that the president had significant reservations about the centralized process. Goetz knew he'd have his work cut out for him to convince the division president of the value of a cross-departmental team and technology.

Next, Goetz approached CEO Ward, who was seated at one of the lobby's cherry wood tables. On Nov. 27, two weeks before the meeting at the Peabody, the company had signed an agreement with Home Depot to jointly market ServiceMaster's landscaping, pest control, plumbing, and carpet and upholstery cleaning services in 30 Home Depot stores. The partnership required local ServiceMaster outlets to accept orders placed by Home Depot customers online at Home Depot's in-store Internet kiosks. Goetz needed to know what Ward's expectations were so that he could align them with his own deadlines for hooking up with the Home Depot stores. Ward wanted Goetz to assure him that ServiceMaster would be able to go live on Feb. 15. Goetz told Ward that he'd do whatever was necessary to meet that deadline.

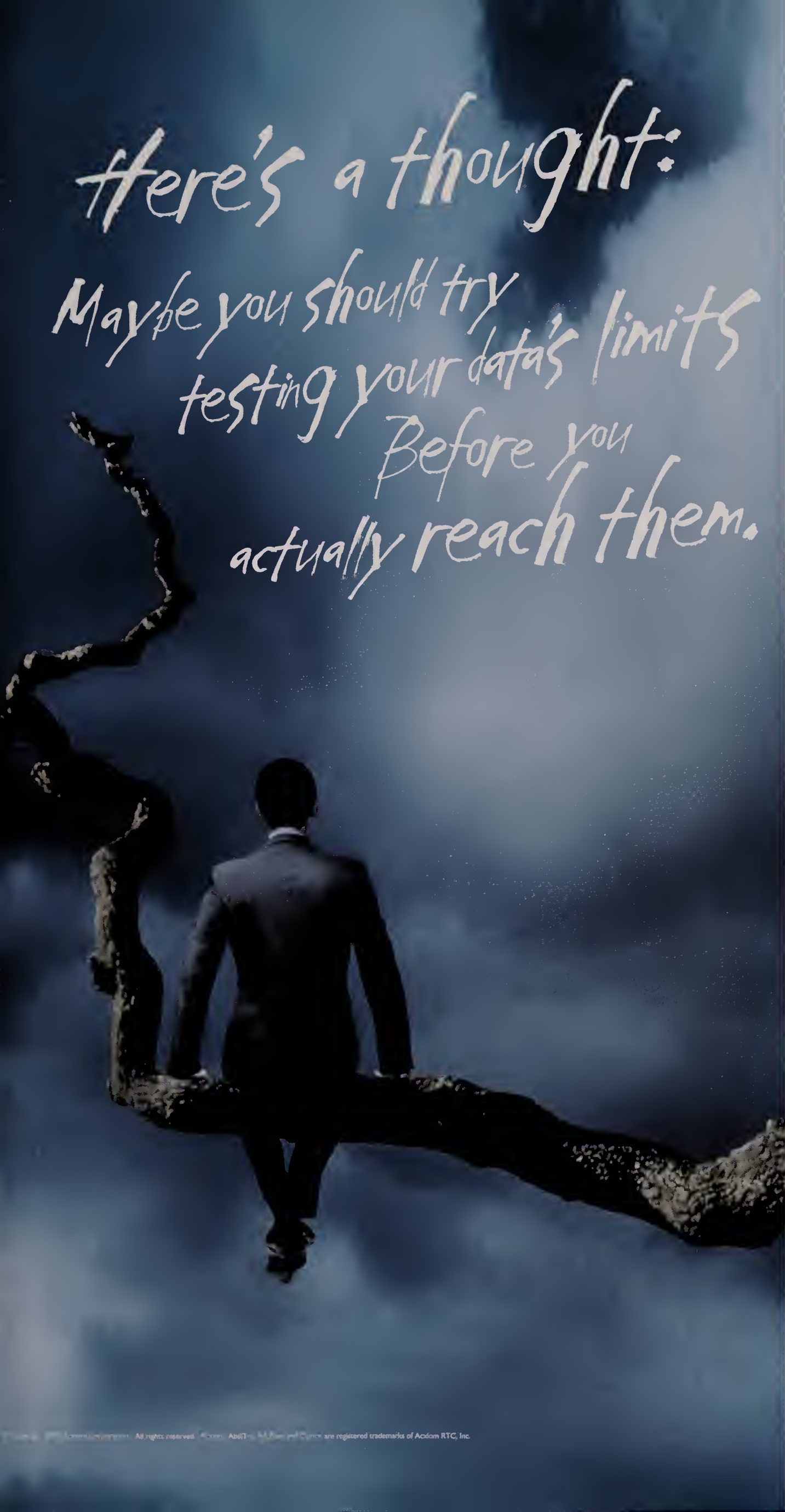


FIGHTING FATIGUE, ServiceMaster CIO Jim Goetz resisted the urge to retire to his room. Instead, he began working the lobby.

the office are best used to get their perspectives on business initiatives in order to align them with his own projects, not simply to build personal relationships with small talk and chitchat.

That summer CEO Jon Ward had announced a Six Sigma project to improve the company's customer service. To establish a baseline, the company needed to gather information on what was important to customers and compile statistics on the service representative's performance in the field. Goetz created a database to store the information. Then he added Web-enabled reporting tools so that ServiceMaster's retail branches could feed the database and the Six Sigma team could access it.

Some of the branch employees were resistant to using the Web because the interface looked and felt so different from the



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Finally, after feeling that he had touched all the bases he needed to, Goetz dragged himself upstairs and slept soundly in the belief that opportunity had knocked, and he had answered.

The moral of Goetz's tale is to use informal conversations with colleagues to understand their position on issues. This is how you identify your allies and determine a strategy to convert your enemies. Once you know where your colleagues stand, you know who will be supportive of IT's work, and

So Akyuz immediately went to work. He asked some of his direct reports about training facilities, did some research on the Web and talked to people on his staff who had taken courses in networking.

Soon after, the two executives met in Stride Rite's brightly colored, sunny cafeteria over salads and sandwiches. Akyuz told Thornton what he had found on colleges, and training and certification programs. From there, they moved on to business.

Thornton mentioned how helpful it would be if the members of his sales force had a way to capture their observations about the presentation and placement of Tommy Hilfiger footwear and signs compared with other shoes when they were in a store. Akyuz thought what Thornton was describ-



THANKS TO THE FAVOR he had done, Stride Rite CIO Yusef Akyuz knew the new KM system would have a strong supporter in the division president.

whose negative attitude toward either IT or the strategy might derail the project. The following example illustrates another way to win friends and influence people.

DIALOGUE 3: WALKING THE HALLS PRACTICING RANDOM ACTS OF KINDNESS

Courtiers, according to Castiglione, won favor by showering their princes with precious gifts. CIOs would do well to follow the same model, although they needn't spend extravagant sums on fancy PDAs or Mont Blanc pens. A simple gesture may be enough. Such was the case with Yusef Akyuz, CIO and senior vice president of IT for Stride Rite in Lexington, Mass.

While making his rounds of the office last spring, Akyuz popped in on Rick Thornton, president of the company's Tommy Hilfiger division. Thornton mentioned to Akyuz that his nephew was interested in a career in telecommunications or networking and asked Akyuz if he could dig up some information on the field.

Now, Akyuz had other things to do besides researching colleges and the finer points of Cisco switches. Yet he recognized the request as an opportunity to do a colleague a favor and build a relationship. It didn't hurt that Thornton's request was a subtle way for him to indicate that he acknowledges and trusts Akyuz's judgment and respects his expertise.

ing sounded like a knowledge management system.

"We agreed that it would be a good thing to do and that this would be something we would take on in the future," says Akyuz. And one thing Akyuz knows he won't have to worry about when he does take it on is salespeople not using the system—a problem that has ruined many knowledge management projects. Thanks to the relationship the CIO has cultivated with the head of the Hilfiger division, Stride Rite's new KM system will have a staunch supporter in Thornton. If the salespeople drag their feet about using it, they will have to deal with their own boss, not the head of a faraway IS department.

Consider doing small favors as part of your CIO job. It will help you improve your standing with your colleagues and enable you to stack political chips that you can cash in when a big project comes up.

Business folk have begun to understand the value that a CIO brings to an organization, but to some degree the attitude that CIOs lack business acumen and the skills necessary for completing IT projects on time and on budget endures. If CIOs want to completely eradicate that prejudice, they have to step out of their department and spend more time getting to know their business partners both personally and professionally. What Castiglione wrote about in the 16th century still applies: Cultivating allies and rubbing elbows with the people in power are the keys to project and professional success. And that's why experienced CIOs like Akyuz, Barea, Goetz and Zilvitis spend time perfecting the art of the shmooze. **CIO**

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What are your secrets of shmooze? Share them with others in **TALK BACK**. Look for the link in the **WEB CONNECTIONS BOX** on www.cio.com.

If you have suggestions for how your colleagues can improve their shmoozing skills to promote their projects, share them with Senior Writer Meridith Levinson at mlevinson@cio.com.

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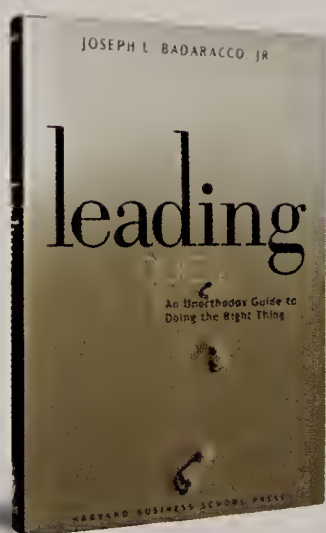
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A Win-Win Situation

Low-key strivers, those who transform companies behind the scenes, may be an organization's most valuable asset



Leading Quietly: An Unorthodox Guide to Doing the Right Thing

February 2002

By Joseph L. Badaracco,
Harvard Business School
Press, \$25.95

EVERY SUCCESSFUL ORGANIZATION has at least one or two high-profile risk-takers who triumph in the end and are a company's public face, getting all the attention and kudos. Joseph L. Badaracco, the John Shad professor of business ethics at the Harvard Business School, calls them heroes. But in his new book, *Leading Quietly: An Unorthodox Guide to Doing the Right Thing*, Badaracco argues that heroes are not the only leaders a company needs in order to succeed. In fact, the most impressive, effective leaders are often the unsung ones, those who labor patiently in the shadows.

Nurturing any sort of leader is an increasingly important challenge in today's complex workplaces. Badaracco, who has written frequently about ethical management and leadership in past works, including *Leadership and the Quest for Integrity* (with Richard Ellsworth) and *Business Ethics: Roles and Responsibilities*, believes that important lessons can be learned from the everyday obstacles that must be overcome by those toiling in the background. With this latest book, Badaracco provides case studies of quiet leaders at work, and gives tips and practical advice to those who want to function ethically without risking their careers. This excerpt focuses on the story of a marketing rep who was stuck between his company's sales policies and keeping a vital customer. Here's how he managed to bend the rules with integrity while making the sale.

—Mindy Blodgett, CIO senior editor

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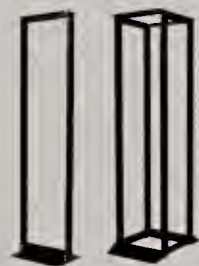
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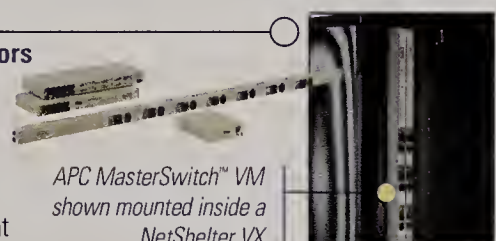
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FRANK TAYLOR WAS A senior marketing representative for Cybersystems, a major computer company. One of Taylor's clients was Robertson & Bayless, a large Chicago law firm. Over the years, it had been a good customer, though Taylor's dealings with the firm had been a roller-coaster ride.

Despite these setbacks, Taylor finally got the order. After this success, Taylor viewed the next year as a "make-or-break" career opportunity, a chance to establish himself as one of his company's star salespeople.

However, by November of the next year, Taylor hadn't made his quota. Although typically this would have worried him, he was working with Robertson & Bayless on a sizeable deal that would make up for his shortfall. The firm was poised to buy a couple new servers and several dozen desktop machines for its litigation area—until Taylor's roller coaster swooped around another curve.

Taylor had planned to sell the law firm the S50 server, which would meet the needs of the litigation area for several years. However, Cybersystems had just announced the introduction of an even more powerful and less expensive server, the S60...[which the law firm] decided [to] purchase. He went to work immediately and, with the help of two senior account executives, developed a new offer. They would sell the firm two of the new S60s, along with several disk drives they were planning to purchase in the near future anyway at sharply discounted prices. The new offer was worked out under the terms of a sales promotion program called Win-Win, whose aim was to give sales reps the flexibility they needed for tough accounts. [The firm] agreed to go ahead with the proposal—if the new servers [could be] connected to two older computer networks in the firm.

Taylor's heart sank when he heard the request. The Win-Win program prohibited, in fairly clear language, the kind of hookup [the firm] wanted. The purpose of this restriction was to make the S60 servers, which were in limited supply, available to the largest and most sophisticated customers. Because the law firm had an older network, it stood at the rear of the queue.

Taylor's conviction that this was just another case of company favoritism toward big customers and their sales reps only fueled his anger. He also thought it was wrong to dump old machines on smaller customers when new ones were available.

Once Taylor found a little time, he began thinking there was some "flex" in the Win-Win. What if the server was connected to another server and *that* server was connected to the old equipment? With just a little effort and a little luck, he thought he could stay under the radar, get the new server installed and make everybody happy. Taylor's first step was to check with his manager. To his surprise, she was quite evasive. She also told Taylor that the decision was his to make, wished him luck and told him to keep her posted.

was known for acute sensitivity to political winds and was probably unsure which way they were now blowing.

Now Taylor was in a situation in which the truth—the clear intent of Win-Win—could cost him and his firm a deal worth a lot of money. Given his years of experience at Cybersystems, he was fairly confident he could get the new servers hooked up and cover his trail—but should he do it? In the end, Taylor found a way to get the new servers installed at the law firm without taking a public stand on the ethics of his problem, violating his principles or risking his career. To understand how he did this, it is important to put his efforts into a broader context.

Remember Your Responsibilities

The first lesson in Taylor's story is the importance of not letting complexities obscure responsibilities.

While complexity wears people down, it also places greater responsibilities on their shoulders. As someone burrows deeper into a problem, they often become the only person who really understands it. Taylor's

**When a PROBLEM IS COMPLICATED,
it is tempting to think that the
SOLUTION lies somewhere IN THE DETAILS.
But often that ISN'T THE CASE.**

After this frustrating meeting, Taylor called Al Cruise, a 20-year veteran of the company who had been Taylor's first boss. Cruise told Taylor that violating the ban would be risky. He said the company's senior executives were trying to put some clear boundaries around the "can-do" culture. According to Cruise, anyone who violated the ban could easily become "the poster boy for the new boundaries."

Cruise's comments helped Taylor understand why his boss had been evasive. She

efforts made him the "world expert" on how Win-Win applied to the installation of S60 servers at Robertson & Bayless. No one was better suited to sorting out the issue in a practical way.

When a problem is complicated and technical, it is tempting to think that the solution lies somewhere in the details. If only we could find the right formula, consult the right expert or understand the fine print, then we would know what we should do. But often that isn't the case. If Taylor



chaos or complex system?



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had not found a way around his problem, he would have had to choose between serving the customer and breaking the rules. Fortunately, by following the next guideline, he avoided this choice.

Look at Your Fish

This odd-sounding guideline is perhaps the most important thing that quiet leaders do when they face complicated problems. But what does looking at a fish have to do with addressing these problems responsibly?

The answer lies in a story told about Louis Agassiz, one of the most important American scientists of the 19th century. When graduate students first joined Agassiz's lab, they were given a tray containing a small, ordinary fish. Agassiz would tell them to study the specimen—without damaging it, reading about it or discussing it with anyone. They eventually realized that Agassiz expected them to look at their fish for several weeks.

In particular, they grasped the importance of exacting attention to detail and what one called "hard, continuous work."

Without realizing it, Frank Taylor did what Louis Agassiz advised. He raised the server issues with a series of individuals who helped him understand the problem from a variety of perspectives—technological, financial, organizational and political.

Taylor eventually remembered that Cybersystems had a policy of installing new equipment in a few customer sites before its wide release, in order to give the equipment a final test and deal with any bugs. This policy provided the perfect solution to his dilemma.

Taylor spent the next several days "ramming the idea up the division." As a result, the law firm was approved as a test site for the S60 servers, which therefore had to be connected to all the other equipment at the law firm. There was no violation of Win-Win, Taylor's customer got the computers it needed, Taylor hadn't violated his principles, and he made his sales quota for the year.

Taylor succeeded because he had a strong but healthy fixation on his problem.

Don't Go It Alone

The third lesson in Taylor's story is to avoid the impulse to be a hero and resolve complex problems on your own. No amount of "looking at the fish" can substitute for training, experience and expertise. The reason is twofold. First, people with training and experience simply know more about particular problems. Second, even if they don't have the answer right away, they have an intuitive sense of what is really going on in a situation and how to search for answers.

There are no shortcuts through spheres of complexity, no substitutes for hard-won knowledge and instinct. In Frank Taylor's case, the time he spent thinking, even brooding, about his problem was only a first step. He also gathered perspectives from a wide variety of sources, and then rethought the problem.

Drilling down should not be a solitary activity. For him and for others, responsible leadership is in-depth learning. It is no guarantee of success, but it does improve the odds.

Don't Be Afraid to Back Off

The final lesson from Taylor's case is to back off if you're in over your head. Sometimes a problem is so complex that no amount of

reflection, analysis or consultation can provide a solid basis for action. In those cases, the morally responsible thing to do is to wait, buy more time and try to get the problem into the right hands.

What are the signs of being in over your head? One is that consultation leads nowhere. Another warning is an inability to frame the issue in simple English. Responsible action is not a shot in the dark—it requires a firm grasp of the fundamentals. Conflicting instincts are another flashing warning light. When you are pulled one way and then another, barreling forward is the wrong thing to do. A final warning sign is the nagging detail, the piece that won't fit

RESPONSIBLE ACTION is not a shot in the dark—it requires a firm GRASP OF THE FUNDAMENTALS.

into the puzzle. In Taylor's case he tracked down the discordant note in the music.

We cannot overlook the fact that specialized, technical knowledge pervades much of our lives, and that this creates distinctive challenges. This was clearly the case for Frank Taylor. He had to work through many layers of his problem before he found a solution. His story had a happy ending. But there was no guarantee that things would work out this way. Sometimes people dig and dig, they look at their fish, they consult others, they live with their problem, but they get nowhere.

When this happens, a natural reaction is to give up. But, as we have seen, quiet leaders don't like that option. Taylor didn't want to lie, he didn't want to stick his customer with an inferior server, and he didn't want to lose his bonus. Fortunately, there are alternatives to giving up or drilling down endlessly. **CIO**

How do you support the "silent" leaders at your company? E-mail Senior Editor Mindy Blodgett at mblodgett@cio.com.

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KL	611	AMSTERDAM	12:45	ON TIME
NK	126	WEST PALM BEACH	12:45	ON TIME
LH	430	FRANKFURT	12:50	ON TIME
UA	3501	FRANKFURT	1:00	SEE LH430
NK	1452	TAMPA	1:05	ON TIME
SR	124	ZURICH	1:10	ON TIME
AZ	626	MILAN	1:15	ON TIME
NW	7626	MILAN	1:15	SEE AZ6
KL	089	BRUSSELS	1:20	ON TIME
NK	055	MANCHESTER	1:20	ON TIME

Arrivals

1

Departures

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KE	037	SEOUL	9:35	ON TIME
	1504	FT. MYERS	9:45	ON TIME
		CHICAGO	11:00	ON TIME
			11:55	ON TIME
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			12:10	SEE SKMS
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			12:20	ON TIME

Departures

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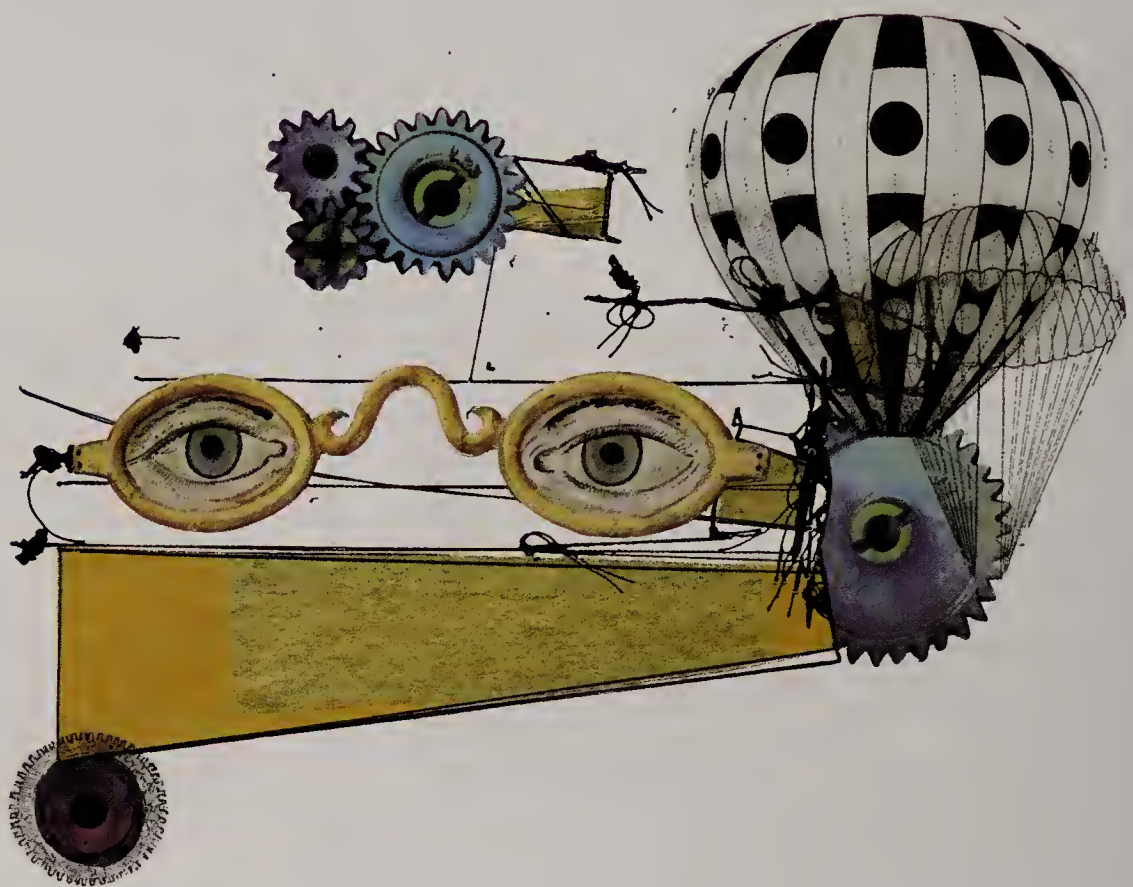
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Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to clindquist@cio.com. Read Lindquist's Tech Tact column every Monday at www.cio.com.



Is Good Enough Good Enough?

New tools provide low-cost, "good enough" failure protection

BY JOHN EDWARDS

FAILURE ISN'T an option for Aeris.net, a San Jose, Calif.-based company that provides security monitoring, asset tracking and other mission-critical telemetry services to customers across North America. The company can't risk

an extended service interruption, so it needed to install a technology that would help it recover from any type of system failure within seconds.

Traditional fault-tolerant products fit the bill in terms of performance but not cost. So

Client services...Work at home...Face recognition...Integration

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Questions, suggestions or ideas please contact Andrew Burrell, audience development manager, at aburrell@cxo.com.

Aeris.net, like a growing number of businesses, turned to high-availability computing—a multiprocessing technology that's designed to give system failure insurance to organizations without draining their bank accounts.

"The latest high-availability products are far less expensive and easier to use than in the past," says Wayne Kernochan, vice president of platform infrastructure research for the Aberdeen Group, a technology research company in Boston. "It's getting to the point that even the smallest organization can now consider adopting the technology."

But as high-availability computing moves down the IT food chain, many CIOs are still wary of the technology's hidden risks and costs, including potentially degraded system performance, added server licensing fees and unrealistic expectations. Such risks could lead to expenses that would offset high-availability computing's relatively cheap acquisition costs.

Unlike expensive fault-tolerant clustering systems, high-availability systems don't promise 100 percent uptime.

"For us, high-availability was like buying a car with an air bag," says Aeris.net CTO Syed Zaeem Hosain. "We knew it could protect us, but we also understood that there were risks involved."

A New Way

Unlike expensive fault-tolerant clustering systems, high-availability systems don't promise 100 percent uptime. Instead, the field's vendors aim for "three nines"—99.9 percent—or better than average uptime performance. That's good enough for almost any company—even a business like Aeris.net that stakes its reputation on uninterrupted service. High-availability computing marks a radical departure from long-held fault-tolerant philosophy,

says Kernochan. "Rather than reach for perfection, the goal is to reach a 'good enough' performance level."

To achieve low-cost, good enough performance, high-availability technology combines servers into a "fail-over" cluster. Each server within the cluster monitors the health of its companions and is prepared, in the event of an emergency, to step in and take over. "You put the same piece of software on multiple systems and make them look like a single system," explains Kernochan. The approach differs markedly from fault-tolerant systems, which rely on redundant hardware to take the place of failed components. Fault-tolerant systems have a lot of hardware that lies idle when there's no failure in the system, the primary reason for the technology's high cost.

Choosing high-availability over fault-tolerant computing can help adopters achieve significant cost savings. Kernochan notes that an entry-level high-availability

system, composed of two to four PC-based servers plus software, costs around \$20,000, as opposed to at least \$70,000 for a starter fault-tolerant clustering system. "And, very often, a company already has the PC servers, so there's no need to buy them," he says.

Sales of high-availability systems are projected to grow from \$52.5 billion this year to \$84.2 billion in 2005, according to Harvard Research Group, a Cambridge, Mass., company that specializes in high-availability systems research. As a result, even old-line fault-tolerant standard bearers, such as Stratus Technologies and Compaq Computer, are becoming aware of high-availability computing and are moving into the field with their own offering.

Applications

PREDICTIONS

Local App Power

A RECENT report by analyst firm Yankee Group predicts that the next swing of the pendulum between centralized and decentralized applications will soon align with a new concept called client services.

According to the report, "The Next Generation Web: Locally Empowered Applications," those new tools will take advantage of both rich clients and Web services to create intelligent applications that offer enhanced functionality on the client side while still acknowledging the benefits of centralizing certain components.

Neal Goldman, Yankee's director for application infrastructure and software platforms, likens the arrangement to how modern companies function, with remote offices being responsible for a variety of local tasks but certain operations referred to the central organization for processing.

The report also notes that Web services, such as Microsoft's .Net, is a logical piece of the client services puzzle. ".Net is about having smart clients talking to smart servers using Web services as the communications infrastructure," Goldman says.

For more information regarding the report, visit www.yankeegroup.com.

—Christopher Lindquist



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Keeping the Promise

High-availability computing allows Aeris.net to market virtually uninterrupted service. That's vital for a company that promises its customers an unwavering electronic eye over valuable assets. "We currently have a less-than-10-second response anywhere in North America," says Hosain.

Using servers produced by Resilience, a high-availability systems vendor in Sunnyvale, Calif., Aeris.net aims for an uptime percentage that approaches the threshold of fault-tolerant computing. "We're targeting for 'five nines' every month—99.999 percent—which is a maximum downtime budget of 25 seconds,"

Cluster Server 6 software, for example, costs \$995; a 10-server-node version costs \$1,995. Resilience's server systems, by comparison, start at about \$20,000.

While most CIOs think of high-availability in terms of systemwide coverage, the technology can also be used to boost the reliability of specific applications. Harvard Medical School in Boston, for example, uses RainWall software from Rainfinity to give its network firewall high-availability performance. In addition to providing protection against sudden calamities, the software softens the impact of firewall maintenance and upgrades. "We can take down the firewall and install

Some CIOs fall into the trap of expecting too much out of a particular high-availability product.

says Hosain. So far, Aeris.net has had to settle for "four nines" availability, although Hosain believes that tighter maintenance and the addition of more reliable hardware will help the company reach its goal. "We've had some months where we've had 100 percent uptime," says Hosain. "We're going to get there."

While Aeris.net achieved its high-availability capabilities through specialized hardware, many organizations simply opt to add high-availability software to their existing servers. Companies such as Marathon Technologies, Rainfinity and Turbolinux sell products that let users cluster servers into high-availability systems. Compared with the cost of buying specialized high-availability servers, the price of clustering software is almost negligible. A two-server-node version of Turbolinux-

a new version and never affect our users' ability to access the network and its information resources," says Harvard Medical CIO Joseph Bruno.

By spreading the firewall application over two servers, the software also enhances load balancing and keeps the firewall from becoming a data-flow bottleneck.

Tolerating Trade-Offs

Although many organizations have no trouble tolerating high-availability's sub-100 percent uptime performance, some fail to properly anticipate the technology's various other trade-offs. Performance degradation is high-availability computing's key weakness. Unlike fault-tolerant systems, which provide the same processing capacity after a failure as before, high-availability systems must struggle along with reduced capacity. That attribute is the result of high-availability's reliance on servers that are already performing critical tasks, while fault-tolerant systems have the luxury of falling back on redundant resources.

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Office designs plus installation start at about \$5 per square foot, though actual costs depend heavily on complexity, size and products used. The company can design offices for existing homes or new construction nationwide. For more information, call 781 982-0525.

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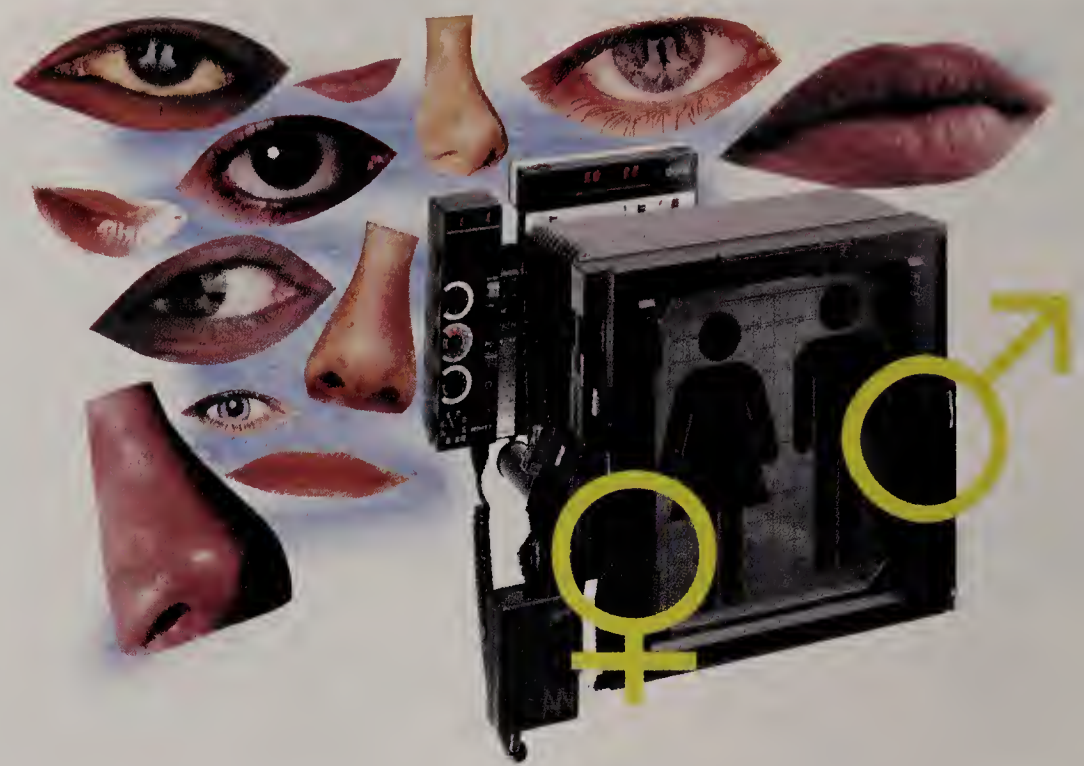
that a high-availability system has enough capacity to provide useful performance in the event of an emergency. Yet scaling a high-availability system is a complex, demanding task. Furthermore, server-clustering software tools alone can provide only a limited degree of scalability. "Hardware high-availability is more scalable, up to a point, and more cost-effective than software scalability," says Kernochan. "You want to make sure that, as much as possible, you get your availability out of the hardware."

Some CIOs also fall into the trap of expecting too much out of a particular high-availability product. An offering designed to protect against server breakdowns and other hardware-based calamities, for example, can't effectively handle software-based problems, such as programming bugs or hacker attacks. "When developing a high-availability strategy, you need to take the whole system into account," says Hosain. "You've got to analyze every single point of failure."

High-availability adopters also have to consider the technology's hidden costs. As operating systems and applications spread over additional servers, organizations may have to pay for extra server software licenses or renegotiate existing licensing deals. CIOs also have to watch out for the fees some high-availability vendors tuck in for items such as service monitoring, training and hardware adapters.

Despite the technology's challenges, Hosain remains sold on high-availability computing. He even has a standing offer with his company's CEO. "I told him that he's welcome anytime to go into our computer facility and pull a wire." The boss hasn't yet taken Hosain up on his offer, but the CTO is confident in his installation—to a point. "I've just asked him not to pull two wires at the same time," Hosain says. ■

John Edwards is a freelance writer based in Gilbert, Ariz. He can be reached at jedwards@john-edwards.com.



UNDER DEVELOPMENT

Face recognition

Who's That Girl?

"YOU LOOK LIKE A GIRL" may have been the ultimate '60s-era father-to-son put-down. But while dad may have thought he knew best, only a computer can tell for sure.

A new computer classification technology, created by Pennsylvania State University researchers, actually exceeds humans at correctly identifying a person's gender. Using nose, mouth, eye and voice cues, the system is correct nearly 100 percent of the time, while humans consistently score in the low 90s. "It's automatic and nearly foolproof," says Rajeev Sharma, the research team's leader and a Penn State associate professor of computer science and engineering.

The system is based on support vector machine (SVM) software, a sophisticated pattern-recognition technology used for a variety of difficult separation-oriented tasks, such as scanning tissue cell samples for abnormalities. Sharma and his researchers developed SVM software designed expressly for face and voice recognition. "It seemed like a natural extension of the technology," he says.

To test its creation, the team linked the software to a camera and examined 1,755 thumbnail facial images that were cropped to show only eyes, noses and mouths. A separate audio-enabled SVM was trained on voice samples that included just fractions of a second of voice data. A manager program then fused the results and made the final gender classifications. "It's the combination of the two sources that makes the recognition rate so high," says Sharma.

Sharma says the system can easily be applied to security situations in which it's critical to determine an individual's sex. For example, the technology could be used to signal an alert whenever an unauthorized individual tries to enter a monitored rest room, fitting room or dormitory. The technology also promises to help marketers. "It could be used to see how many men versus women sit behind the wheel of a particular car or purchase a certain brand of soap," says Sharma. "It takes the ambiguity out of sexual identification."

—John Edwards



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COMPANIES TO WATCH

Fuego Inc.

Smooth Integrator

Fuego looks to ease business services orchestration issues

BY AMANDA S. FOX

THE ROMAN politician Sallust once noted, "By union the smallest states thrive. By discord the greatest are destroyed." While failed integration or lousy process management may not have directly contributed to the fall of Rome, businesses still need to consider the wisdom in those words. Addison, Texas-based software developer Fuego spent the past 19 years contemplating integration and came up with Fuego 4.1, its flagship business services orchestration (BSO) offering.

Less than 10 percent of companies today are fully integrated, says Tyler McDaniel, director of application strategies at the Hurwitz Group based in Framingham, Mass. "There's a lot of work left to be done in this area," he says. But the market is growing. With connectivity easier to achieve, thanks to developments such as Web services, companies are beginning to concentrate more on process management. However, "few companies

offer true business process management tools," McDaniel notes, but he says that Fuego's BPM focus is what makes its BSO system so unique.

Emilio Lopez-Gabeiras and Felix Racca incorporated Fuego in the United States in 1996 as a Java-focused spinoff of their Buenos Aires-based InterSoft SA. First offering a relational DBM system in 1983, InterSoft had blossomed into the largest ERP software company in Argentina by 1994, according to IDC (a sister company to CIO's publisher, CXO Media). Today, Fuego counts among its customers digital wireless provider Nextel International, Prosa (Mexico's largest electronic transaction processor) and Tesoro Petroleum. With partners such as Oracle and OLAP vendor IdeaSoft, Fuego closed a third round of funding last October.

Last January, the company released Fuego 4.1. Most BPM solutions focus on data and application-level transforma-

tion, and routing with an asynchronous messaging system at their cores. Fuego, instead, takes a top-down, process-oriented approach for end-to-end business integration. While Fuego 4.1 can work with a messaging infrastructure, it doesn't require one.

The key lies in Fuego's Orchestration Engine. Customers can modify, publish and deploy EAI and B2B integration process models quickly within a single company or across firewalls to multiple organizations, with each partner able to customize its own business process. Fuego customers can deploy process engines in parallel and run them as a "federation" that communicates via TCP/IP or XML/SOAP. Fuego's patent-pending Business Services Integrator connects directly to a host of middleware to create flexible components, all of which enter a catalog to reduce future programming time, according to the company—and at least one of its customers.

Nextel International CIO Jorge Perez, who initiated his company's integration project with Fuego 4.1 in March 2001, was impressed with the product. "The decision was based on the ease of process design, customization and interfacing to back-end services through standard interfaces such as Corba and XML. Cost and features of the product were comparatively better than competing products," explains Perez. Although still in the integration stage, Perez also notes that process design, front-end customization, business layer implementation and integration to back-end interfaces took only three months—or 20 percent of the total project time line.

But despite happy customers, Fuego faces the challenges of any small company with new technology. According to McDaniel, the company's biggest issues will be visibility and credibility, and Fuego needs both to make potential customers aware that the company exists, and to demonstrate that its new approach to integration has merit. ■

watching...

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Products Fuego 4.1

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NOTIFICATION: Winners will be notified in October 2002.

PRESENTATION: Awards ceremony takes place February 4, 2003, at the CIO Enterprise Value Retreat. Winners will be profiled in the February 1, 2003, issue of *CIO* magazine.

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- The system must have been operational prior to July 1, 2000 (yes, we really mean 2000!).
- Entries must be made jointly by the CIO/IT executive sponsor AND by the business sponsor for whom the system delivers value. Both must sign the Truth of Information release.
- Entrants must agree to be featured, along with their systems and organizations, in a *CIO* article.
- Entries must be complete (see complete application form online).
- All entries must be computer-generated or typed; no handwritten entries will be accepted.
- A copy of the entry should be sent via e-mail or on diskette as an MS Word file. Download the application from www.cio.com/eva.

- Only one entry per company will be considered.
- IT vendors, public relations and advertising companies, consultants and other third parties may NOT apply on behalf of another company. They are encouraged to forward the application to the "owner" of the system or to contact *CIO* Magazine to recommend that the client be contacted to fill out an application form.

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Lone Star Gas Co. 1993
Los Angeles County Department
of Public Social Services 1994
McDonnell Douglas Helicopter Systems 1996
MacGregor Medical Association 1997
Medical Center of Delaware 1993
Michigan Department of Transportation 2002
The MITRE Corp. 1999
New York City Department of Finance 1998
New York City Transit Authority 1993
Office Depot Inc. 2001
PA Department of Environmental Protection 2002
PC's Compleat Inc. 1995
The Perrier Group of America Inc. 1993
Pfizer Inc. 2000

PPG Industries Inc. 1999
Procter & Gamble 1998
Rockwell Space Systems Division (SSD) 1996
The SABRE Group 1999
SBC Communications Inc. 1999, 2002
Schlumberger Ltd. 1997
South Florida Water Management District 1994
State Street Global Advisors 1998
SynOptics Communications Inc.
(now Bay Networks Inc.) 1994
Tech Data Corp. 1998
Telogy Inc. 1996
Texas Instruments 1993
Travelers Managed Care and Employee
Benefits Operations 1993
Tufts University 2001
United HealthCare Corp. 1996
U.S. Army Pacific Regional Program Office 2000
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PUNDITS

David L. Margulius

How to Organize Your Agenda

A starter kit for making your next integration project succeed

INTEGRATION is a dilemma these days. On one hand, your CEO wants more ROI from the technology you already own, which means aggressive integration across the company—a unified view of the customer, real-time supply chain visibility. You've heard it all before.

On the other hand, budgets are tight and everyone's skeptical of big, boil-the-ocean projects. The more you try to bite off, the more dollars and political capital you'll spend.

Given those restrictions, you're going to need a set of organizing principles you can rally your whole team around. Consider the following suggestions a starter kit—not the five commandments.

Get the leverage. If you're completely new to integration, experimenting on a limited basis to get familiar with the technology (EAI, for example) makes sense. Otherwise, it's time to bite the bullet and reach for the leverage that comes only from cross-enterprise integration. An executive at a global bank recently told me: "We needed a unified view of the customer—and the ability to generate a single unified statement—to win share of wallet in our business." If you want to be competitive, leaving silos intact is probably not an option. Corollary to "get the leverage": get the buy-in. Executive team sponsorship can be the pinnacle of integration.

Focus on business processes. The secret to getting those business processes moving seamlessly across your enterprise is near the top of the list—making sure integration works on the level of business rules and data models, not just basic connectivity. In a portal implementation, for example, this means getting departments to agree on a consistent taxonomy so that



You need a set of principles—championed by you—to keep your organization focused.

you can expose a complete set of enterprisewide data. Use the 80/20 rule: Focus on your biggest existing systems investments (ERP, legacy systems) where high-level integration can unlock ROI quickly.

Insist on standards. While a unified companywide integration architecture would be nice (single messaging bus, single EAI vendor), what's really important is a standards-based approach so that you can build on top of diverse systems to tie processes and workflow together across the company. Look at standards

like the Java Message Service (JMS), the J2EE Connector Architecture (JCA) and XML/SOAP. Push your vendors hard on them. Also push your team to develop the necessary infrastructure to support both J2EE and Microsoft applications—don't hamstring your company's managers from deploying best-of-breed solutions in the name of integration.

Be open to experiments. Hewitt Associates based in Lincolnshire, Ill., a leading HR benefits outsourcing company, built a Web services interface to let its customers retrieve their employees' 401(k) account status information in real-time. What Hewitt found was that this integration experiment sparked customer demand for tighter and more real-time integration in other areas. Web services experiments may look like science projects today, but they will grow into powerful competitive weapons quickly. And by the way, they can also be a quick and dirty way to get lightweight integration projects done inside the firewall.

Give your customers what they need to win. If you do business with Wal-Mart Stores or Dell Computer, you're probably already tightly integrated into their supply chain systems. If you don't, guess what? The rest of the world is becoming more like them. Your integration roadmap must prioritize the needs and architectures of your key customers and partners. As real-time processes become more important, the ability to integrate easily and flexibly outside the firewall will affect your bottom line. And having the integration groundwork in place to provide seamless self-service customer experiences, as Schwab or Cisco does, will be equally important.

The point is that you need a set of principles—championed by you—to keep your organization focused and help navigate the integration obstacle course. Good luck, and may your cross-enterprise processes be seamless and scalable. **CIO**

David L. Margulius is a San Francisco-based technology and marketing consultant. He can be reached at dmargulius@pacbell.net.

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READER Q&A

Susan H. Cramm answers questions on balancing IT supply and demand.

Ask Susan H. Cramm your leadership and management questions at www.cio.com/leadership/agenda.html.

How comfortable do you find the hot seat? E-mail Leadership and Management Editor Edward Prewitt at hotseat@cio.com.

Leadership Lessons from the Modern Military

Military methods hold unexpected how-tos for corporate CIOs

BY STEPHANIE OVERBY

John Carrow, vice president and CIO for Unisys, didn't learn to be the IT leader he is today as a computer science graduate student at the University of Illinois. Nor was it during the 16 years he spent in IT at General Electric. It wasn't even during his five years as CIO of Philadelphia, where he helped the mayor turn around that then-bankrupt city. Rather, it was his experience jumping out of planes and working on the ground as a U.S. Army ranger in the Vietnam delta in the late 1960s. "The best training I ever had for becoming a CIO was the time I spent as a gung ho airborne infantry officer," Carrow is fond of saying.

Although there would seem to be few similarities between IT work and military operations, Carrow says the leadership and communication skills he honed as an adviser to a group of Vietnamese and Cambodian soldiers who were carrying out mobile operations, raids and night missions are what make him a successful CIO today. "I still deal with a great deal of uncertainty, just like I did back then," says Carrow from his office at the Blue Bell, Pa., headquarters of Unisys, a \$6 billion computer services company. "In industry, you have to have a great deal of self-confidence, you have to be able to lead and motivate not only your IT forces but the rest of the company, and you must have the right resources to support your mission."

Some military methods have shifted since Carrow was in the Army, yet there is a great deal of military leadership theory that's applicable outside the uniformed ranks. While command-and-control architecture remains the basis of any military organization, the branches of the

U.S. armed forces have become much more flexible in recent years, pushing decision-making authority down to the lowest levels and trying to ensure that each soldier understands the larger mission. As a result, modern military lead-

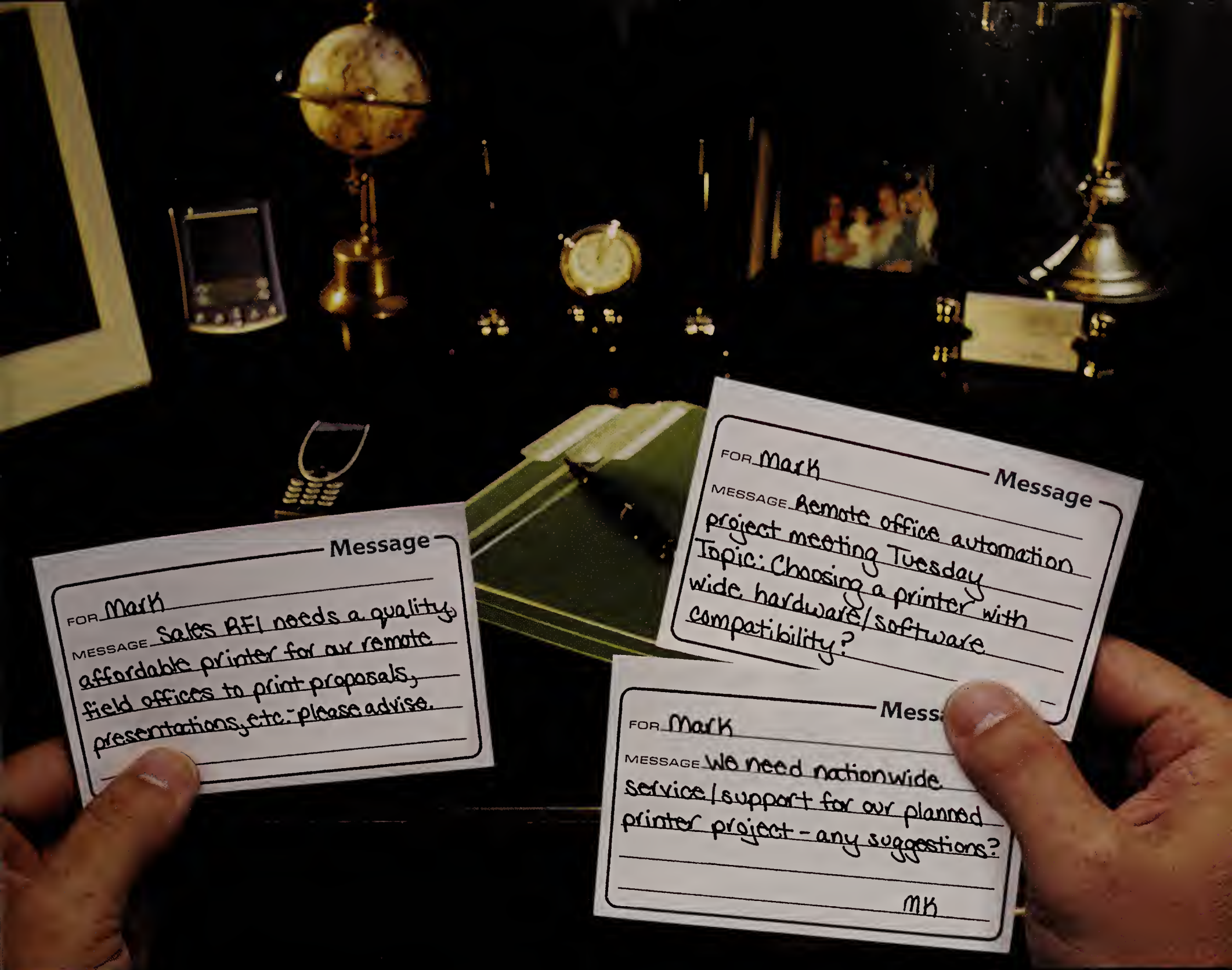


Unisys CIO John Carrow finds that his military leadership training translates well to the private sector.

ership methods can provide valuable lessons for CIOs in any organization.

More Than a Serial Number

Current and former military leaders will tell you it's a common misperception that the armed forces pay no attention to the individual. They say the chief lesson they learned in active duty was the importance of taking care of people—soldiers, sailors, airmen or civilians. "The military suffers from a B-movie stereotype of hard-nosed military leaders. But in fact,



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Hot Seat

they understand diversity and appreciate people for the talents that they bring to the table," says Col. Thomas A. Kolditz,

head of the department of behavioral sciences and leadership at the U.S. Military Academy in West Point, N.Y. "More than anything, military leadership is about understanding human behavior. It's about inspiring and influencing individuals."

Brig. Gen. Robert M. Shea, director of command, control, computers and communications and CIO of the U.S. Marine Corps, says that attitude of putting employees first should serve corporate CIOs as well as it has him during his 32-year military career. "It's instilled in you the day you walk into boot camp. You take care of your Marines," says Shea. "Despite all the technology that is available today, it's still about people. I see an awful lot of parallels between the Marines and industry. There isn't much that I'd do differently if I left for the corporate world tomorrow."

A tenet of military leadership is that learning about your people never stops. Lifelong leadership learning was drilled into Atlanta-based American Cancer Society CIO Zachary Patterson throughout the 26 years, 9 months, 13 hours and 6 seconds he spent in the Army. And it's a habit he finds equally useful in civilian life. "My best advice to any CIO is to get schooled in the art of leadership. Study people," says Patterson. "And never stop being a student."

There Is No "IT" in Team

Clearly the military wouldn't function if it were merely made up of a bunch of self-empowered individuals. As important to the armed forces as the recruitment and retention of top-flight personnel, is the difficult task of creating a team out of diverse people. "The high point of my military career was being able to work

with some of the most gifted people in the world and lead them. It was the opportunity to take people from all walks of life and turn them into a team," says John Watkins, the CIO of South Portland, Maine-based Fairchild Semiconductor, who spent 25 years in the Army serving in Korea, Vietnam and the Persian Gulf.

Watkins has found his training in team-building equally useful since he left the Army for the corporate world in 1995. "It's a different mission, but I still do nothing more than build teams and lead people," he says. "It's no less critical in the corporate world. And what I practiced doing in the military, I've made no changes to."

Watkins learned a signal lesson in the

was the same group of soldiers facing the same challenges. But something had changed dramatically. "What I discovered was a unit that believed it could do nothing right, whose leaders didn't believe they could do anything right. So it was a matter of getting them to believe in themselves, believe in one another and work as a team," Watkins says. "And I've tried to practice that in every structure I've been in since."

Leaders Trump Managers

What CIO hasn't wished he could just give directives that would be obeyed, and be done with it? Well, leadership doesn't work that way—not even in the military, says retired Rear Adm. John Gauss, now

LEADERSHIP LESSONS FROM THE MILITARY

Drop and Give Me Five

1. BEGIN WITH YOUR PEOPLE

- Leadership is about understanding human behavior and influencing individuals.
- Never stop learning about your staff's strengths and weaknesses.

2. MOLD A TEAM

- Get your staff to believe in themselves, believe in one another and work as a team.

3. LEAD RATHER THAN MANAGE

- While you need to organize things, it's ultimately more important to inspire people to exceed their own limits.

4. DON'T DEPEND ON RANK

- Give people information on tasks and persuade them to want to do them.

5. AIM FOR ADAPTABILITY

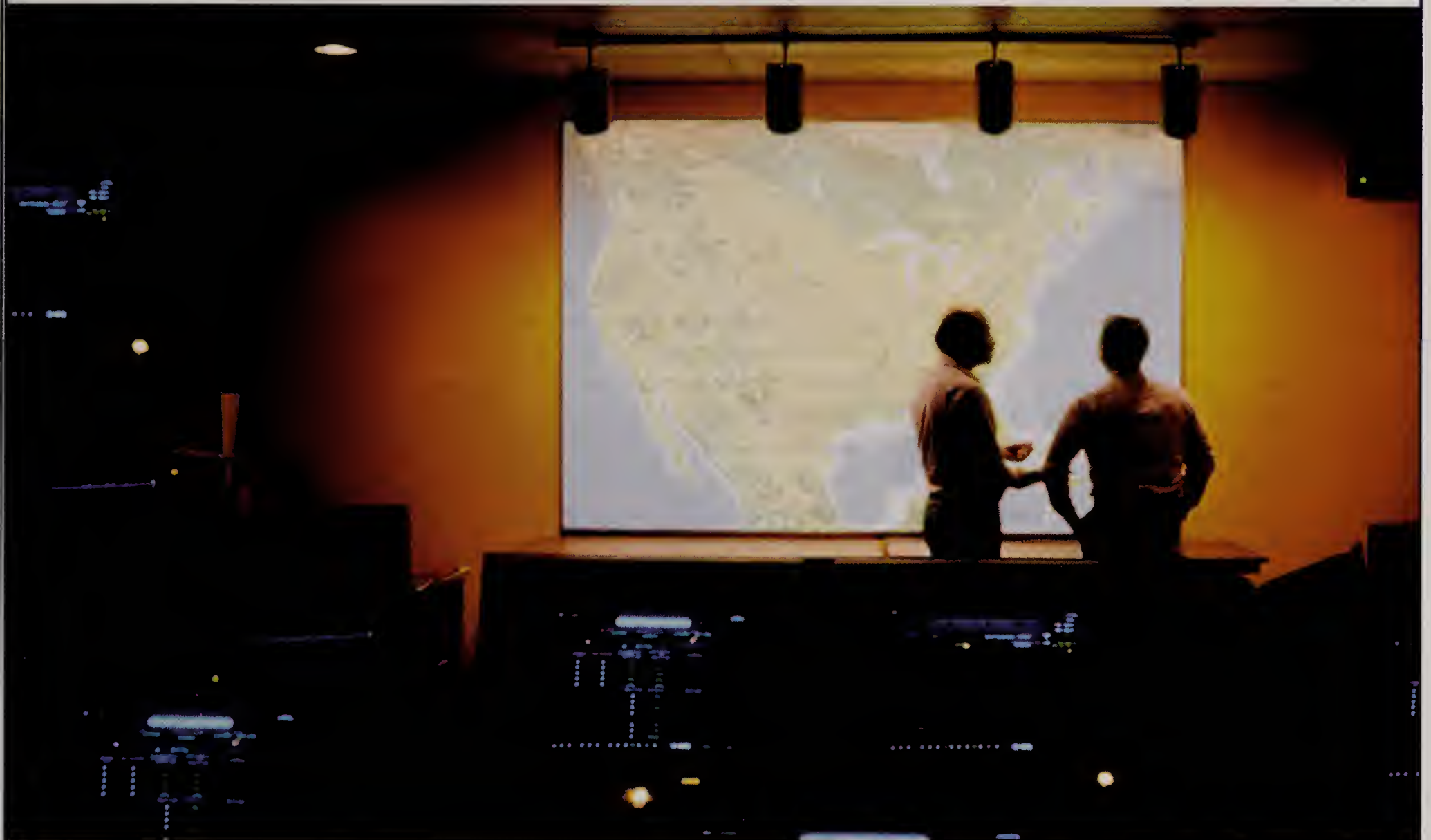
- Begin with a plan but be prepared to adapt it quickly to changing situations.

importance of leadership when he commanded a battalion in Fort Hood, Texas, in 1982. It wasn't just any battalion—it was the worst of all the battalions at the installation: the 11th Signal Battalion, which had never passed an annual inspection. "I said, 'Just give me time,'" remembers Watkins. "I believed they were a great group of soldiers, they just needed some leadership." Four months later, that battalion got the best overall inspection score of any unit in Fort Hood history. It

CIO of the Department of Veterans Affairs in Washington, D.C. "When I first came to the VA, folks said, 'John, this isn't the military. When you give an order, people aren't going to snap to,'" says Gauss, who ended his 32-year Navy career as commander of the Space and Naval Warfare Systems Command, overseeing 8,400 employees. "And I said, 'How's that any different from where I came from?'"

The best military leaders have to learn

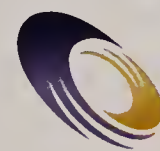
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the fine art of motivation early on. "You have a lot of smart people in the military, and you can't just order them to take a

hill. You have to tell them why they're taking the hill and get them to want to do it," says the American Cancer Society's Patterson.

Maj. Nate Allen, a West Point professor who cowrote a popular Army leadership book, *Taking the Guidon*, says, "The military is definitely a different environment, but people are people. They don't want to be managed. They want to be led. They want to understand what they're doing and why."

That's advice business executives would do well to heed. "In the private sector, people are taught to be good managers. But in the military they're taught to be good leaders," Gauss says. "While you need to organize things, it's ultimately more important to inspire people to exceed their own limits."

Despite the military's command hierarchy, falling back on rank is a no-no. "If you have to rely on the fact that you're a colonel to get people to do things, it just won't work. You can't rely on the insignia on your collar. You have to be a good leader," Patterson says. "And it's the exact same thing in the corporate world. You just don't happen to wear a uniform."

Adapt and Survive

Being a successful military leader requires flexibility and adaptability to change—traits that suit IT leaders well too. Unisys CIO Carrow learned the importance of adaptability while fighting in the jungles of Vietnam. "The things you practiced in terms of motivation, strategy and tactics didn't mean much of anything in the live combat situation," Carrow says. "You can make all the plans in the world, but when you're in the midst of it, it's your real-time reactions that count."

MANAGEMENT BRIEFS

Flextime and Telecommuting

By Edward Prewitt

Flexible Workers, Stronger Profits

The next time an employee asks for a change in his work schedule, show some flexibility. Your shareholders will be glad you did. Flexible work arrangements actually boost the bottom line, according to a new study from HR consultancy Watson Wyatt Worldwide. In *The Human Capital Edge* (McGraw-Hill, February 2002), researchers Bruce Pfau and Ira Kay present the results of a comprehensive study of the effectiveness of standard work practices and HR policies. Companies following Pfau and Kay's findings can expect a whopping 47 percent jump in shareholder returns, they say.

One of the single most effective work practices is flexibility in work arrangements. By itself this policy increases shareholder returns by 3.5 percent. The authors point to two factors that make flextime so valuable: a "surge in productivity" created by workers using their time more efficiently and an increase in employee retention.

Putting the Brakes on Telecommuting

There are different kinds of flextime, including flexible scheduling, compressed workweeks and telecommuting. Employers and employees don't view these policies equally, according to "Measuring the Impact of Workplace Flexibility," a study published in October 2000 by Boston College's Carroll School of Management.

The practice that's most effective in creating a satisfactory balance

between employees' work and their personal life, according to the report, is daily flextime—giving employees freedom to vary their hours as needed. Almost two-thirds of survey respondents making use of daily flextime policies said they were satisfied or very satisfied with their work and life.

Telecommuters in the survey found it difficult, however, to draw a line between work and personal life. They reported feeling a time crunch and believed they were often passed over for the best assignments. Their managers concurred, saying telecommuters had less positive



relationships with those at work.

John Halamka, CIO of CareGroup Healthcare System, a Boston-based hospital network, "absolutely supports" flexible work practices such as flextime and compressed workweeks, but sees problems in permanent telecommuting. "There's real value in having people collaborate face-to-face. I generally don't go for telecommuting because you miss the synergies of having people right there," he says.

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But adaptability doesn't mean aimlessness. What Carrow and others with military experience have learned is that your

objective should never change, whether on the battlefield or in the boardroom. "Let's say in the Army you plan to seize a target. There may be enemy forces, there may be terrain issues, or you may have to cross a river. You figure out how to overcome those obstacles and go after your target," Carrow says. "The one thing you can be *sure* of is that the plan will change right away. The rivers may have swollen, there may be more enemy forces than you expected, and you have to adjust."

Carrow says he's faced the same type of situation time and again in business. Competitive issues come up, financial situations change, or resource and talent problems arise. "All the plans a company has made may change. Look at what hap-

"More than anything, military leadership is about understanding human behavior. It's about inspiring and influencing individuals."

—Col. Thomas A. Kolditz,
U.S. Military Academy

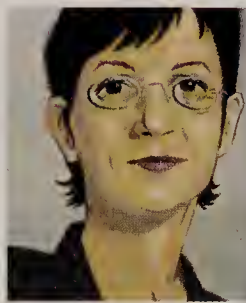
pened on Sept. 11," he says.

Carrow still recalls being a West Point cadet and walking through a stone archway and seeing the words, "If you don't progress, you deteriorate." The statement is as true today as it was when West Point was built, he says. Every institution and every good leader—whether in the military or your company—must keep adapting to new realities. **CIO**

Do military leadership methods hold any lessons for you? E-mail Senior Writer Stephanie Overby at soverby@cio.com.

Leadership Agenda BY SUSAN H. CRAMM

IT Economics 101



It seems like there's an infinite demand for IT products and services. CIOs usually try to address the disparity between supply and demand by implementing various supply strategies, such as improving resource-forecasting techniques and project management, adopting standard software development approaches, and, if they can, increasing the size of their workforce.

The fact is, you can work on the "supply side" all you want and never balance the demand and supply for your resources until you work the "demand side."

Economics 101 tells us that when the price is zero, demand is infinite. People tend to put a very low value on things that are free. Demand management strategies for IT goods and services winnow out those who aren't ready to leverage IT. You have to somehow figure out how to allocate your limited capital and human resources to the highest value opportunities so that you can focus your IT agenda and improve your ability to deliver.

In the marketplace, suppliers sell to the highest bidder. In an internal IT marketplace, where it's difficult to price differentially, you have to find out who is willing to pay the highest nonmonetary price. This is a head-scratcher for many CIOs. After all, isn't "nonmonetary price" an oxymoron?

Actually, many CIOs have long used pricing mechanisms, even if unintentionally. These mechanisms are easy to implement but not always efficient or even effective.

BUREAUCRACY. Paperwork and approval processes tend to nip some of the demand in the bud. As an entertainment executive recently said to me, "It's so hard to get IT to do something; users get frustrated and they just give up asking for things." Needless to say, this approach does nothing for your alignment or reputation with the rest of the business.

FIXED FUNDING. Giving each business unit a fixed amount of IT project funding—with the hope that it will scrutinize the opportunities and allocate based on the highest value—will reduce IT demand as long as people are forced to live within their budget. The downside is that this approach ignores different—and real—needs among business units.

With both of these approaches, funds get allocated to the most persistent or vocal executives rather than those willing to take accountability for delivering results. There is a better way.

CIOs need to take an investment management approach to IT resources. Earmark your dollars based on commitments from operations executives to deliver value—and then monitor the realization of value. Do this by allocating money in stages, proving the benefits of various investments and mitigating the risks as you go. Again, the most practical method is a nonmonetary value commitment, in the form of improvements to operational measurements (say, a commitment to increase distribution cycle time by 50 percent). To bone up on

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IT investment management, read *The Information Paradox: Realizing the Business Benefits of*

Information Technology (McGraw-Hill, 1999), by consultant John Thorp.

As the saying goes, Ideas are cheap; getting things done is hard. Because it's hard work, requiring a demonstration of value will reduce demand for IT resources. When I worked as a CFO in the 1990s, I asked a restaurant operations executive to make a value commitment for a project he wanted to start. I gave him some pilot funding so that he could demonstrate the benefits (to him and to me). He was unwilling or unable to do so and did not receive further funding. A year later, another operations executive asked for the same funding and got it because of his willingness to commit to delivering value. Both were competent executives; the first did a great job of managing the people and the numbers, but the second also understood how to manage and change the business processes.

CIOs haven't fought hard enough (starting with their CFO) to get value commitment built into the IT resource allocation process. As long as you let the general managers focus on IT costs rather than the relationship between costs and benefits, you will lose the organizational survival game. Your costs will always be too high. Investment levels must be set to optimize value—that's the game you want to play. **CIO**

Susan H. Cramm, former CIO and vice president of IT at Taco Bell and CFO and executive vice president at Chevys, a Taco Bell subsidiary, is president of Valuedance, an executive coaching firm based in San Clemente, Calif. She can be reached at shcramm@aol.com.

READER Q&A BY SUSAN H. CRAMM

Balancing IT Supply and Demand

Q: Is strategy effective at managing and reducing IT demand?

A: Strategy can be a very effective tool in managing demand. A well-facilitated strategy process will help gain consensus on the high-value IT opportunities. Unfortunately, because strategy defines what should be done rather than what should not be done, it will not reduce overall demand unless a good investment management process is in place.

Q: How can value be managed within decentralized IT organizations (where the business units get both the IT funding and resources)?

A: By ensuring that an investment management process is in place at the business unit level. There needs to be a central IT organization that includes as its charter the definition and oversight of this process. This process can get a lot of leverage if you set future year funding and resource requests based on demonstrated ability to realize value.

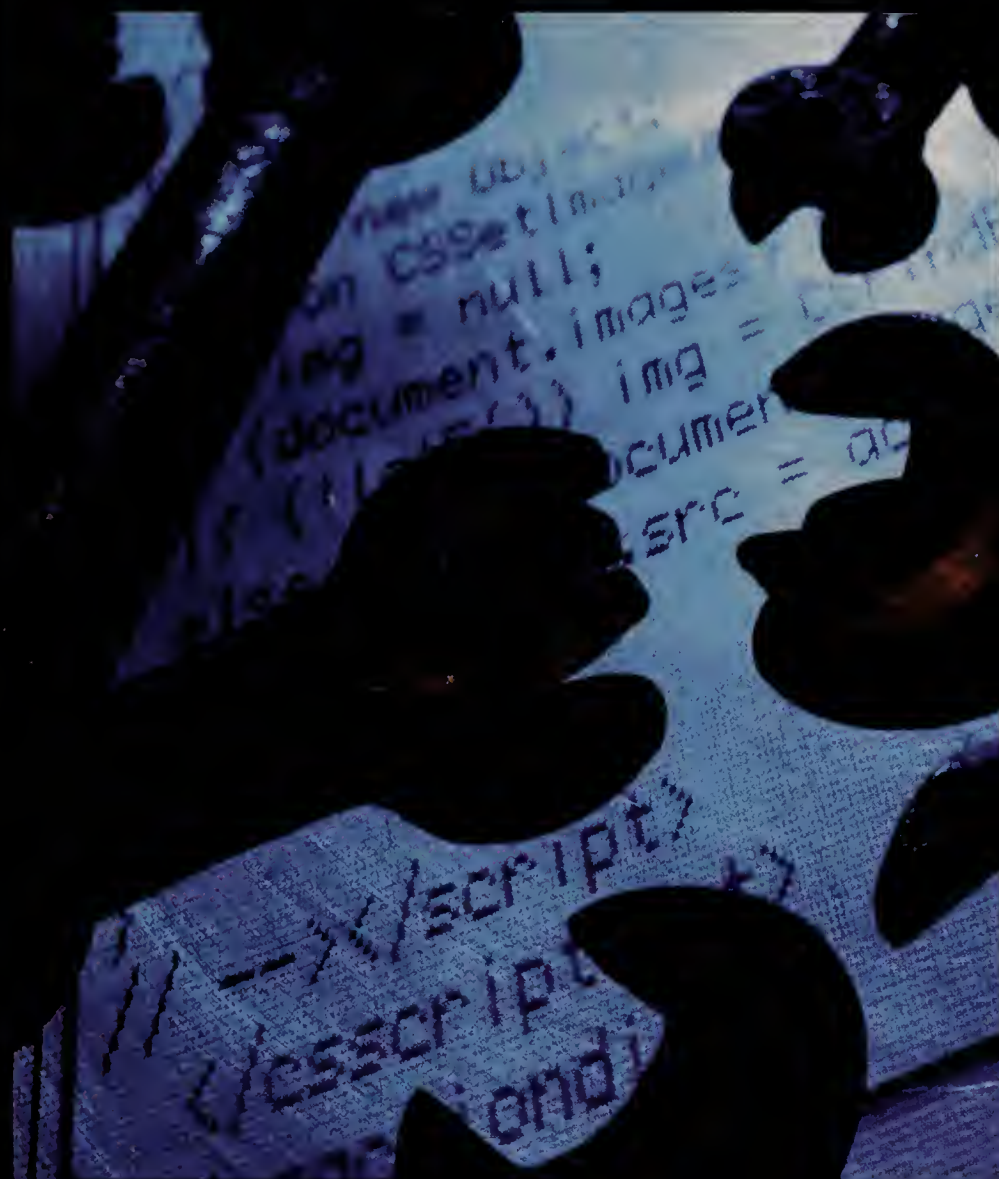
Q: As an IT consultant, I am not sure who the best recipient is for the value message—the CIO, the COO, the CTO? All understand the message, but who will do something about it?

A: I'm impressed that as an IT consultant you are asking this question. Consultants get a bad name, in part from the common practice of assuming that if clients are willing to pay them, their work must be of value. This is short-term thinking that does

not build a long-term relationship. The best recipient for the value message is the executive who is feeling the pain from pouring good money after bad. You are going to have to ask open-ended questions such as, How are your IT investments going? With the answers, you can understand the executive's current issues and help him appreciate how a value focus increases project success and therefore delivers value.

Q: The investment management approach sounds very much like a "phased" approach of doing projects, in which one of the outputs for each phase is the plan or estimate for the next. What are some methods to help sell this approach, especially to those CIOs and customers who "just want to know what it's gonna cost me"?

A: This is a great question and a common concern. Business partners often want to know the cost during the first or second meeting with their IT counterparts. There are three approaches you can take: 1) Give them a very big number and hope they go away; 2) give them a very big range and obtain funding for a first phase to develop requirements; and 3) obtain funding for a first phase to define value, identify the requirements that will drive value, and identify an approach that will balance investment with return. The last option is my favorite because it allows the IT partners to generate alternatives that are properly sized for the value generated. **CIO**



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POLICYFORUM3

PROTECTING OUR HOMELAND

CRITICAL INFRASTRUCTURE PROTECTION

Homeland security is a hot-button topic with far reaching consequences for both industry and government. The protection of critical infrastructures within our communities – telecommunications, electricity, transportation, oil and gas delivery and storage, banking and finance, water, emergency services, and critical government services – is vital to our security. Securing our homeland means securing each of our communities one by one. American communities are not only targets of terrorist acts, they are the first-responders to terrorism.

In order to protect our critical infrastructures at times of crisis, strong executive leadership and effective communication is essential to creating and maintaining security and public confidence. This forum will explore ways IT and business leaders can ensure the security of their businesses and communities in the face of potential threats.

Join us for a discussion of these topics via a free webcast.

HOLD THE DATE: April 23, 2002

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**Protecting the Homeland through
Executive Leadership & Effective Communication,
with guest moderator Arthur R. Miller**

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Log on to hear what business, technology and government leaders, front-line emergency responders, and academics have to say. Participate by pre-registering and submitting questions for the experts. More information regarding participants and topics will be posted on the website prior to the event. Be a part of the solution by participating.

CXO Media Executive Policy Forum3 will kick off the first day of the three-day conference, "Critical Infrastructures: Working Together in a New World: Lessons Learned in Action," hosted by New Jersey Governor James E. McGreevey; The National Critical Infrastructure Assurance Office, U.S. Department of Commerce; and the National Institute of Justice. Site Host: Princeton University

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Summaries

April 15, 2002

COVER STORY Frugal IT Spending

By Simone Kaplan | 76

In bread-and-butter industries such as agriculture, trucking, contract manufacturing and construction, where stiff competition and price pressures mean slim profits, CIOs are used to making few dollars go a long way. CIOs with margins as low as seven-tenths of 1 percent provide frugal spending tips for their recession-mired colleagues. They invest only in projects that are linked to business goals and will show ROI within three to six months. They survey administrative and infrastructure costs for unnecessary spending. They bill their end customers instead of funding development from the IT budget. And they say no to software upgrades. Some companies are taking the opportunity to make their IT departments independent, charging the parent company for IT services, much as a consultant would do. This removes the emotion over the cost of IT while ensuring greater attention to service levels and user accountability.

**Low-margin company
Associated Food
Stores purchased used
storage systems for its
data warehouses
through a reseller and
paid 50 cents on the
dollar. "We don't buy
new equipment."**

—CIO BYRON GOODWIN

CIOs Lead Supply Chain Function

By Ben Worthen | 84

IN MORE AND MORE COMPANIES, CIOs are taking over leadership of the supply chain function. The move makes sense, proponents say, because the supply chain is the most technology-intensive part of many companies. Having the same leader for information technology and supply chain means that the logistics operation receives more technology attention than it would otherwise, and new supply chain technologies are implemented faster. Also, the two departments can be operated more efficiently when they are headed by one executive. Owens Corning sliced \$32 million out of its supply chain budget in the first eight months after it brought that function under the leadership of CIO David Johns, who expects to save \$60 million more in 2002. The catch is that dual-function leaders must overcome culture clashes, establish their credibility with staff and vendors, and juggle an even greater workload.

International Privacy Disconnect

By Daintry Duffy | 92

TO DO SOMETHING AS SIMPLE as cobrand a credit card with a European company, a U.S. bank has to customize contracts to meet European privacy dictates, such as allowing customers to access their own records and limiting the collection and use of customer data. This is a royal pain, and deals have been suspended and information flow paralyzed because an American company failed to offer these protections. The rules need to be standardized, argues international privacy expert Simon Davies, director of London-based Privacy International and visiting fellow at the London School of Economics. Otherwise, he explains, U.S. companies risk losing European business, and there could be further destabilization of the relationship between American and European industry. CIOs must champion better privacy, advocating best practices at every level and then promoting those practices to other companies and to the government, Davies says.

Executive Politics

By Meridith Levinson | 98

A CIO'S INABILITY TO INFLUENCE, negotiate, and establish trust and credibility with senior leadership is the single most significant factor in CIO failure and turnover. True-life case studies in politicking from ServiceMaster, Stride Rite and others reveal several best practices in action. Politically smart CIOs use informal conversations with colleagues to understand their position on issues. They do small favors for their peers to improve their standing and collect political chips to cash in when a big project comes up. They circulate and talk up their projects, collecting feedback. These CIOs credit assistants and allies for their successes. And they pick their battles with discrimination.

Book Excerpt: *Leading Quietly*

By Joseph L. Badaracco | 106

BRASH HEROES ARE NOT THE ONLY LEADERS a company needs. The most impressive, effective leaders are often the unsung ones, those who ethically and patiently achieve their ends and advance their organization without stepping on others. Joseph Badaracco, professor of business ethics at Harvard Business School, offers a short case study of an ethical leadership challenge and draws from it to illuminate guidelines for "quiet" leadership. Among those are: Don't let complexities obscure your responsibilities—when a problem is complicated and technical, it is tempting to think that the solution lies somewhere in the details, which is often not true; and raise the issue with individuals who will help you understand the problem from a variety of perspectives—technological, financial, organizational and political.



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